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WILL A "PLAY-OR-PAY" POLICY FOR HEALTH CARE CAUSE JOB LOSSES?

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A report by Phillip Cryan

Master of Public Policy, Goldman School, University of California, Berkeley

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TABLE OF CONTENTS

I. Executive Summary

II. Acknowledgments

III. Background

IV. Literature review

- i. Treating employer contributions for health care as wage increases
- ii. The effect of minimum wage increases on employment

V. Methodology in brief

VI. Findings: Estimated effect of a play-or-pay policy for health care on employment

- i. Static prediction of employer contribution's effect on employment
- ii. Sensitivity analysis for static prediction

VII. Job-creating effects of health care reform

VIII. Conclusion

IX. Appendix A: Methodology

X. Endnotes

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EXECUTIVE SUMMARY

This report estimates the effects on employment of adopting a "play-or-pay" employer contribution policy for health care. Its main finding is the following: concerns about significant job losses resulting from such a policy are unfounded. Most likely there will be significant job gains. At the very worst, job losses would represent a few hundredths of one percent of employed workers.

A play-or-pay employer contribution policy would require employers who don't provide their workers comprehensive health insurance to pay a new payroll tax to help fund public provision of health insurance for those workers. Many of the health care reform proposals currently under discussion in Congress incorporate such a contribution – as did the campaign proposal put forward by President Barack Obama.[1]

In response to such proposals, both today and in past rounds of debate over health care reform, some scholars and policymakers have raised the concern that a play-or-pay employer contribution might lead employers to lay off workers. Especially given the extent of job losses throughout the U.S. economy in the current recession, this concern warrants serious attention. Would an employer contribution policy for health care lead to job losses? Approximately how many? This report seeks to answer those questions.

The analysis conducted for this report finds that the net effect on employment from a hybrid-system health care reform following the general outline proposed by President Obama is likely to be both positive and large. It would create many more jobs than it would eliminate. It would be difficult, however, to construct an analytical model incorporating the multiple and dynamic effects on employment to be expected from such a comprehensive reform of the health care system or to find relevant sources of micro-level data to conduct such an analysis. Given those difficulties, and given the concern motivating this analysis (might a play-or-pay contribution policy lead to job losses?), it seems prudent to assume the very worst – to put aside all those good, but difficult to quantify, reasons to expect job gains – and to focus on generating a *worst-case scenario* plausible estimate of job losses. How bad could the job losses be, at their very worst? Thus in this report the major reasons to expect significant job gains will be discussed in a separate section, near the end. The primary analysis conducted and presented here assumes that all the expected positive effects on employment discussed in section VII simply do not happen.

Policymakers and the public can compare the worst-case scenario number with more reasonable projections, and then weigh their assessment of the play-or-pay policy's likely effect on employment against all the other expected effects of the broad health care reform proposal under consideration. This report above all seeks to answer the question: is the expected effect on employment of a play-or-pay employer contribution an important argument against a health care reform proposal that includes such a requirement?

The primary analysis builds upon a methodology developed by other researchers for predicting an employer contribution policy's effect on employment, drawing on the extensive economics literature on

the minimum wage. Like those previous studies, this analysis utilizes micro-data on health insurance status and labor-force participation (including hours worked and wages received) from the Census Bureau's Current Population Survey (CPS). The results from such predictions of the effect on employment from an employer contribution depend on several critical assumptions or parameters – most centrally, 1) the cost for employers of compliance with the policy, and 2) the elasticity of employment to increases in the minimum wage (that is, when you mandate a wage increase of *x* percent, what percent of jobs will be lost or gained as a result?). Given the importance of these and other assumptions in predicting the effect on employment, and given that there are grounds for reasonable disagreement on several of the key assumptions, it will be instructive to present findings from the full range of plausible assumptions. Rather than asserting one set of assumptions as correct, this brief will report the results from varying those assumptions across the range of reasonable specifications.

This report differs from prior attempts to estimate the effect on employment from a health care employer contribution requirement in that it models a "play-or-pay" policy along the lines currently under discussion in Washington, with a modest payroll-tax rate facing all those employers who choose to "pay" rather than "play." Prior studies instead modeled a requirement that all employers provide private health insurance to their employees. With average costs of compliance of 40% of payroll or more for employers facing such a requirement, it is not surprising that those prior studies found much larger effects on employment than would be expected from a play-or-pay policy with a cost of compliance of just 4-8% of payroll (the range of payroll-tax levels under discussion today).

Recent legislation raised the federal minimum wage over three years from $5.15 to $7.25. Research on the likely effects on employment of this increase would obviously be very different from research that assumed a minimum wage increase from $5.15 to somewhere between $15.65 and $26.15. Yet this is essentially the difference between this paper – which assesses possible employment losses from the play-or-pay "pay" levels currently under consideration – and previous research that assessed possible employment losses from hypothetical contribution levels five to ten times as expensive to affected employers.

In the worst case scenario for job losses from a play-or-pay employer contribution policy, the total predicted losses would be 166,095 jobs, or 0.1% of employed workers. For such a large disemployment effect to occur, however, a series of very strong assumptions regarding the policy's design and its effects would have to all prove true simultaneously:

1) that no firms currently "playing" (currently providing insurance to their employees) decide, after the adoption of a play-or-pay policy, to stop providing insurance and save money by instead paying the payroll tax;

2) that none of the other four major expected positive effects of health reform on employment (see list below) come to pass;

3) that the elasticity of employment to a contribution wage increase is -0.3 (the far end of the range of plausible assumptions in the recent minimum wage literature);

4) that lawmakers adopt an 8% payroll tax rate for the employers who "pay" (the high end of the range of plausible assumptions for the payroll tax rate, in the current policy debate);

5) that lawmakers provide no exemptions or sliding scales for "paying" small employers; and

6) that none of the cost increase for employers is passed along to consumers in higher prices or taken out of firm profits (instead, 100% of the cost increase gets passed along directly to workers' wages).

It is extremely improbable that all these propositions will prove true. Each in turn represents the worst-case (for the estimated effect on employment) end of a spectrum of defensible assumptions. One-tenth of one percent of workers thus provides an upper bound on the possible extent of job losses, with more reasonable assumptions on one or more of these six propositions leading to much smaller predicted job losses or to net job gains.

If one makes the same assumption regarding elasticity used by economists Katherine Baicker and Helen Levy in a 2007 study predicting significant job losses from an employer contribution and assumes a 6% payroll tax for "paying" employers, the analysis presented here predicts just 48,813 jobs lost, or 0.03% of employed workers. None of the other assumptions in the above list have been altered in generating this estimate. A middle-of-the-road assumption of the minimum cost of compliance, given the current debate, has been used: 6%. And instead of the extreme assumption of a -0.3 elasticity, a more reasonable assumption of -0.1 (Baicker and Levy's assumption) has been used. There is considerable uncertainty in the minimum wage literature, however, about whether the actual effect on employment is slightly negative (such as -0.1), slightly positive, or zero. And there are good reasons to expect job gains from health care reform, as discussed in Section VII. Thus 48,813 provides a more reasonable estimate of the maximum possible job losses from a play-or-pay employer contribution, disregarding all health care reform's expected positive effects on employment and assuming a negative elasticity of employment to wage increases for low-wage workers.

This estimate of the maximum possible job losses from a play-or-pay policy, using Baicker and Levy's elasticity assumption but a 6% payroll tax for "paying" employers (instead of a requirement that all employers pay a percentage of their workers' insurance premiums, which Baicker and Levy modeled) – 48,813 – is a smaller number than the average *revision* the Bureau of Labor Statistics makes to its estimates of employment, two months after issuing each estimate.[2]

At the other end of the spectrum of reasonable elasticity and cost-of-compliance assumptions, *still excluding from consideration* all the other expected positive effects on employment discussed in section VII, an estimated 55,365 jobs would be created by the employer contribution.

Moreover, it is likely that the positive effects on employment from health care reform will surpass by several orders of magnitude any modest job losses caused by a play-or-pay policy considered in isolation, providing a substantial boost for the U.S. economy and U.S. workers. While there are good reasons to expect these positive effects – reasons that will be presented in section VII – it would be difficult to construct a convincing model to predict their number in a manner similar to the microdata-driven primary analysis presented here. Thus these reasons to expect significant job gains are discussed in a separate section. There are five principal reasons to expect large employment gains:

1) the creation of new jobs in the health care sector;

2) increased worker productivity due to improved health;

3) efficiency gains in labor markets;

4) savings for employers now providing expensive coverage who choose to "pay" instead of "play;" and potentially largest of all,

5) system-wide savings from a reduced rate of health care cost growth.

In summary, when compared in scale to the primary goals and expected effects of President Obama's health care reform proposal – making comprehensive health care coverage accessible and affordable for all, and reining in the growth of health care costs – the magnitude of even the worst-case-scenario effect on employment from a play-or-pay policy simply is not large enough to constitute a serious argument against the proposed health care reform.

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BACKGROUND

Since play-or-pay employer contributions for health care were first proposed in the early 1990s, a number of different scholars and policy-makers have raised the concern that they could lead to significant job losses. The current round of debate over health care reform has been no exception, with some opponents of President Obama's reform proposal branding the employer contribution a "job-killing tax on work."[3] Is it? This policy brief seeks to answer that simple question.

Before presenting an analysis of the likely effect of an employer contribution on employment, it is worth briefly summarizing what play-or-pay policies are, why they are thought to potentially cause job losses, and what estimates other researchers have made of their effect on employment.

A play-or-pay policy would require all employers who don't provide their workers comprehensive health insurance (don't "play") to pay a new payroll tax to help fund public provision of health insurance for those workers. Such an approach seeks to establish a reasonably equitable playing field among employers (eliminating the possibility for some employers of maintaining a competitive advantage by not paying for their workers to have health insurance while their competitors do so), and to ensure everyone's access to health insurance without dismantling the employment-based private insurance system or interfering with "employers' ability to tailor arrangements to their workers and to offer more than minimum packages."[4]

While numerous formulas to determine the amount "paying" employers should be made to pay have been proposed, including varying the amount paid with firm size or requiring employers to pay a percentage of the workers' health insurance premiums, in the current round of debate over health care reform nearly all proponents of an employer contribution have called for a flat payroll tax formula for "paying" employers. For each worker, employers not providing high-quality Employer-Sponsored Insurance (ESI) would pay a percentage of their hourly payroll to the government. Proposed rates vary from 4%-8% of payroll.

President Obama's campaign proposal,[5] and the outline of a health care reform package presented by Senator Max Baucus immediately after the 2008 election,[6] draw heavily from a series of proposals for "hybrid system" health care reform made in recent years, especially UC-Berkeley professor Jacob Hacker's "Health Care for America" proposal[7] and the Commonwealth Fund's "Building Blocks for Health Reform."[8] The reformed health care system they propose would be "hybrid" in the sense that private, employment-based insurance would be maintained and a new national insurance "Exchange" would be established alongside it. A Medicare-like public insurance program[9] would be made available in the Exchange, as would several private insurance options. Anyone not receiving ESI would be eligible to enter the Exchange, and then to choose either the public or a private insurance option.

This approach would neither dismantle the private health insurance system to replace it with a federal, public one ("single payer") nor move away from public programs and subsidies toward market-based individual solutions like Health Savings Accounts. While each of those approaches continues to have many advocates in Congress, the general outline provided by President Obama and Senator Baucus (and former Senator John Edwards and Secretary of State Hillary Clinton, when they were presidential

candidates) proposing a hybrid-system reform with a new Medicare-like public program and an insurance Exchange has become the focus of most of the political debate and negotiation. While most of the policy-design details – many of them with vast economic, social, and political implications – remain to be negotiated, the broad outline for reform common to all these political leaders' proposals is reasonably clear. That broad outline includes a play-or-pay employer contribution policy.

Why would an employer contribution lead to layoffs, according to those concerned about this potential effect? The prediction of job losses has less to do with the contribution itself than it does with the presence of minimum wage laws, as Lawrence Summers first pointed out in a seminal article on mandated benefits published two decades ago.[10]

If one looks at compensation from the employer's perspective, and recognizes that the cost of employing a worker includes not just that worker's wage or salary but also all legally-required taxes and benefits and whatever other benefits the employer chooses to provide, it seems reasonable to expect that employers will seek to "pass through" any new cost of employing people (such as a health care payroll tax) to their workers in the form of reduced wages.

For any worker whose current wages exceed the prevailing minimum wage by an amount greater than the cost to the employer of compliance with the play-or-pay policy, there is no potential disemployment (i.e., job loss) problem: the employer could reduce the worker's wages by the full cost of compliance, if not immediately then over a few months or years. If, however, the worker's current wage is low enough that the employer would be paying below the prevailing minimum wage if the employer dropped the wage by the full cost of compliance, then that worker is potentially at risk of losing his or her job; the employer contribution has operated, in effect, like a mandated wage increase for that worker. Some fraction of employers facing this wage increase for their low-wage workers may lay off low-wage workers rather than shoulder the higher costs of employing them brought by the law.

Only a small number of studies to date have sought to predict the number of jobs that would be lost or gained as a result of adoption of an employer contribution requirement for health care.[11] They have predicted a significant disemployment effect, ranging from 224,284 (Baicker and Levy) to 750,178 (Burkhauser and Simon) jobs lost. Given that the data used in these analyses preceded the 2007 minimum wage increases, it can be expected that a similar analysis conducted today would generate a larger estimate of the number of jobs lost. Each of these studies modeled policies that would impose average costs of compliance of 40% or more of payroll on employers, as opposed to the modest (4-8% of payroll) levels for "paying" employers currently under discussion.

People's views of the employer contribution, and their sense of whether large job losses are likely to result from it, are an anything-but-trivial component of the broader debate over health care reform taking place today. According to an April 2009 Kaiser Family Foundation poll, when asked whether they "favor or oppose requiring employers to offer health insurance to their workers or pay money into a government fund that will pay to cover those without insurance" – whether they favor a play-or-pay policy – more than seven in ten respondents say they are in favor. But if the poll-taker then asks "What if you heard that paying for this may cause some employers to lay off some workers?," 65% of those who'd said they were in favor after the initial question switch to opposing the play-or-pay policy.[12]

LITERATURE REVIEW

In their 2007 National Bureau of Economic Research paper "Employment Health Insurance Mandates and the Risk of Unemployment," Katherine Baicker and Helen Levy argue that "regardless of one's beliefs about the employment effect of minimum wage increases … the employment effect of an employer health insurance mandate that increases employer costs ought to be the same as the effect of a change in the minimum wage."[13] This statement provides the basic point of departure for the analysis presented here. It is worthwhile to briefly review the economics literature on the two topics outlined in that statement: 1) treatment of an employer contribution policy as equivalent to a minimum wage increase, and 2) the more contentious question of minimum wage increases' effect on employment.

TREATING EMPLOYER CONTRIBUTIONS FOR HEALTH CARE AS WAGE INCREASES

Concerns that employer contribution policies could lead to job losses have less to do with the expected effects of the contributions themselves than with the combination of those expected effects with the presence of minimum wage laws.[14] If an employer cannot adjust a worker's wages downward to reflect the full cost of compliance with the contribution policy and still be paying the worker the prevailing minimum wage or more, then the contribution has operated like a mandated wage increase for the worker. For employers, of course, hiring decisions are based not on the worker's salary or wage but "on the total cost of employment, including both wages and benefits such as health insurance, maternity leave, disability insurance, and retirement benefits."[15]

Empirical studies have demonstrated that under many circumstances, employers indeed reduce workers' wages to reflect the new costs of providing a required benefit to their employees.[16] However, whether the "pass-through" of new costs to wages is 100% or somewhat less than that, whether it happens very quickly or over a matter of months or years, and in what ways the extent of pass-through varies by industry, firm profits, or other characteristics all remain less clear.

If a new cost of employing people led to neither layoffs nor wage decreases for low-wage workers in a particular firm, what could be the explanation for that departure from the standard pass-through assumption? There are four possible answers to that question (and answers that are not mutually exclusive, but could each account for a small part of a firm's failure to reduce wages or employment to reflect the full cost of compliance with the policy) that seem especially worthy of consideration. These four alternative "absorption mechanisms" for the new employment costs are 1) prices, 2) profits, 3) productivity[17], and 4) reduced wage disparities.[18] That is, the firm could raise the prices consumers pay for their goods or services, reduce their profits, increase productivity (or otherwise reduce inefficiencies), or reduce wages (or benefits) for employees making well in excess of the minimum wage. It may be useful to consider each of these possibilities in terms of who bears the new costs (in contrast to workers bearing 100% of them in the form of reduced wages or layoffs): 1) consumers; 2) shareholders; 3) no one; and 4) workers, but not low-wage workers. While these mechanisms may in

reality absorb some of the new costs from compliance with an employer contribution policy, there are considerable obstacles to empirically determining the extent to which they do so (and under what specific circumstances). As a result, the default assumption in this report is that 100% of the costs of compliance get passed through to wages (or layoffs); this assumption will be relaxed in the sensitivity analysis section.

The one alternative absorption mechanism for which some compelling empirical evidence is available is prices. Much of this evidence is drawn from the food-service industry. A Chicago Federal Reserve study found that restaurant prices rise in response to minimum wage increases, and that the price increases are larger for firms that are more likely to employ minimum-wage workers.[19] An Institute for Labor Research and Employment study of a citywide living wage law found a small but significant price increase among fast-food restaurants.[20] As Anna Sinaiko explains, in direct reference to play-or-pay policies:

> If a set of firms in the same industry and local market are required to begin providing health insurance … and if the demand for their products and services is relatively inelastic, then these firms could raise prices to offset the cost of health coverage. Approximately 90 percent of California firms that do not offer benefits report that their competitors also do not provide benefits.[21]

That many or most local firms in the same industry face the same cost increase at the same time is critical, clearly, for this pass-through to prices to occur. A federal play-or-pay policy would achieve that simultaneous and equal effect, for those industries (like restaurants) with low rates of ESI. Though the demand for any one restaurant's goods and services may be highly elastic, if an increase in the costs of employment is faced by all their competitors at the same time, then what will matter is the elasticity of demand for restaurants, not for any one particular restaurant. (The minority of restaurants providing ESI prior to the contribution would stand to gain from this change, of course.)

When the city of San Francisco approved the first city-level employer contribution policy for health care in the country in 2007, restaurant owners were among its most vocal opponents. While "Healthy San Francisco" is too new a program for any clear conclusions to be drawn from it, restaurant owners in the city have provided an unusually explicit illustration of pass-through to prices. They have added a new line just before the "Total" on their receipts, showing customers the added cost of Healthy San Francisco payments as a separate line item.

Though there is good reason to expect that the average extent of pass-through of wages is less than 100%, and that in certain industries it may be considerably less, the standard microeconomics assumption of 100% pass-through will be used in this report, with the exception of a brief consideration of other possibilities in the sensitivity analysis section.

THE EFFECT OF MINIMUM WAGE INCREASES ON EMPLOYMENT

David Card and Alan Krueger argued in their 1995 book Myth and Measurement that "economists' views of the minimum wage are based largely on abstract theoretical reasoning."[22] Few economists at the time were interested, according to Card and Krueger, in empirically testing their theoretical assumptions regarding wage floors and low-wage labor markets. Little empirical work on the minimum wage's effects had been conducted in recent years. Now, fourteen years after Myth and Measurement, if some economists' views continue to be based on abstract theoretical reasoning that is decidedly *not* because of a lack of empirical studies. In the years since Myth and Measurement's publication, few arenas of economic inquiry have benefited from more scrutiny and debate regarding methodology, data and theory than the effects of the minimum wage.

Despite the volume and quality of empirical work on the minimum wage, no consensus has emerged on the basic question most of the studies seek to answer: what's the elasticity of employment to increases in the minimum wage? A vigorous debate continues, with careful empirical inquiries substantiating a range of elasticity estimates. "There is a wide range of existing estimates," note David Neumark and William Wascher, two researchers who have consistently estimated relatively large job losses. "Accordingly, [there is] a lack of consensus about the overall effects on low-wage employment of an increase in the minimum wage."[23]

Most of the elasticity estimates derived from careful empirical studies range from -0.3 to +0.1.[24] There appears to be an important difference between the findings of studies based on panel data versus studies based on analysis of particular regions or industries, with the former finding significant negative elasticities and the latter finding zero effect, small positive elasticities or small negative elasticities.[25]

While it makes an important difference for the kind of estimation conducted for this paper which elasticity assumption is used within a -0.3-to-+0.1 range, it is worth noting that despite the heat of debate over this estimate, "whether negative, zero, or positive, the effect on employment [estimated by empirical studies] is typically very small."[26]

A -0.1 elasticity has been assumed in the main analysis presented in this report (with variations to that assumption presented in the sensitivity analysis section) because it is the elasticity assumption used by Baicker and Levy in their estimate of the effect on employment of an employer contribution for health care, from which this report has borrowed several key methodological premises. Strong arguments can be made, however – drawing largely on up-close analyses of data from particular regions or industries, as opposed to panel data – that the best elasticity assumption to use differs trivially from zero, or that it is in fact positive.

It is important to consider the possibility that the net effect on employment of a mandated wage increase – or a play-or-pay contribution for health care – may be positive. How could this be the case?

Economists wrestling with this question have offered a clear answer in recent years. In brief: workers in some labor markets, especially low-wage labor markets, may get paid less than their marginal revenue product (what "they're worth" to their employers, the revenue they generate). Standard microeconomic reasoning assumes that workers are paid roughly what "they're worth" – that a worker's wages are

equal to her marginal revenue product. Many low-wage workers, according to this qualification to the standard assumptions, may be getting paid wages below their marginal revenue product, because of the monopsony power of employers in that labor market. ("Monopsony" is when one buyer – of labor, in this case – faces many sellers; "oligopsony" is when a small group of large buyers faces many individual sellers. Conceptually they are the same as "monopoly" and "oligopoly," just on the buyer rather than seller side.) In such markets, firms do not – as standard microeconomic theory would assume – face market-determined prices (wages) for labor, but instead exercise a degree of discretion and choice in wage-setting (price-making).[27] Such price-making power is likely stronger in some industries and localities than others, according to the particular characteristics of labor markets in those industries and places; but there are also indications that it may be present in labor markets for low-wage workers generally, despite and across the differences in local-market and industry characteristics.[28]

Price-making power can come from a firm's size and market share, of course, but – crucially – for labor markets it can also come from the "search frictions" faced by potential workers seeking jobs.[29] That is: if workers lack perfect information regarding all the jobs that are available and the wages and benefits associated with those jobs – a fairly safe assumption, judging by common sense – hirers of workers may exercise a degree of oligopsony or monopsony power. The greater the imperfection in the circulation of information about jobs, the greater the potential price-making (wage-setting) power of employers.

Concerns about the distortions in this price-making scenario, it should be stressed, do not have anything to do with fairness or equity for low-wage workers. Wages set below workers' marginal revenue product generate efficiency losses. They impede growth. In monopsonistic or oligopsonistic labor markets, some upward correction of wages would be an efficiency gain. This is the basic rationale explaining positive estimates of the elasticity of employment to increases in the minimum wage: higher minimum wages could force employers who wield market power in labor markets to set wages closer to the marginal revenue product of their employees, whereas – because of their market power, derived in part from the imperfect information available to job-seekers – they are not otherwise driven to do so by competition. It would not make much sense to expect this effect in all labor markets, but in those where information does not flow freely or a small number of firms provide many of the jobs it seems a probable outcome. Low-wage workers may be especially likely to find themselves in labor markets characterized by these imperfections.[30]

The -0.1 elasticity used in this report, then, has been selected not only because Baicker and Levy used it in their study but also because it is relatively conservative. Most of the researchers finding significant negative elasticities either disregard or dispute the theoretical arguments just presented regarding monopsony and oligopsony power in labor markets, arguing instead for maintaining classical assumptions regarding the equilibrium equivalence between wage and worth.

A final comment, before moving on from this literature review: it is crucial, when considering elasticities of employment to minimum wage increases, to remember that these are estimates of *net* effects on employment. Any significant increase in wages (or mandated benefits) is likely to cause job losses in some sectors and firms alongside job gains in other sectors and firms. Elasticity estimates do not look at where the gains and losses come, but at the net effect.

METHODOLOGY IN BRIEF

The methodology used in this paper is based in part on the approach used by economists Katherine Baicker and Helen Levy in a 2007 National Bureau of Economic Research (NBER) study.[31] By drawing on the extensive economics literature on the effects on employment of minimum wage increases, Baicker and Levy developed a compelling and straightforward method for estimating the effects on employment of an employer contribution policy for health care benefits. As the authors themselves noted, other scholars wishing to vary some of the key assumptions they made can easily do so while making use of a similar methodology and data-set.[32]

In summary terms, this methodology treats the added per-worker per-hour costs those employers not currently providing health insurance would face under a new health benefits contribution policy as reductions in the workers' hourly wages. If the hourly wages of any non-elderly worker currently lacking employer-provided health insurance can be reduced to reflect the full per-hour cost to the employer of compliance with the policy, then it is assumed here that such a downward adjustment of hourly wages will be made. If, however, such downward adjustment "runs into" the prevailing minimum wage in that worker's state – in other words, if compliance with both the prevailing minimum wage law and the new health benefits contribution policy would require the employer to raise the worker's total hourly compensation – then the worker is considered potentially "at risk" of losing her job.

By multiplying the percentage wage increase effectively mandated for each worker in this "at risk" category by an elasticity estimate taken from the minimum-wage literature, one can predict the static effect on employment from adoption of the policy.

Among several critical assumptions shaping the results of such a prediction, the two most important are 1) the cost to employers of compliance with the policy, and 2) the elasticity of employment to mandated wage increases. These and other key assumptions will be varied in the sensitivity analysis section of this report. The most important difference between this report and prior efforts to predict the effect on employment of a play-or-play policy for health care using a similar method is the expected cost of compliance with the contribution for employers:

TABLE I: WIDE VARIATION IN COST OF COMPLIANCE

Study	Cost of compliance assumed, as a percentage of low-wage workers' payroll
Baicker and Levy 2007[33]	40.6%
Burkhauser and Simon 2007[34]	42%[35]
Yelowitz 2006[36]	42%
This report (using recent federal health care reform proposals that include an employer contribution)[37]	6%

Prior studies have used cost estimates from state-level health care reform proposals and early-1990s federal health care reform proposals – calculated as a percentage of health care premium costs or as a

fixed hourly fee per worker – instead of from the kinds of health care reform proposals currently under discussion in Washington.[38] Current proposals that incorporate a play-or-pay contribution would require "paying" firms to pay a modest, fixed percentage of payroll to help fund public provision of coverage.[39] Per-worker per-hour costs of compliance with such a policy are a small fraction of the expected costs of compliance with a percentage-of-premium requirement.

Since the prior studies used data from before the 2007 minimum wage increases, all else equal the analysis presented here should be expected to produce larger disemployment estimates than the prior studies.

Appendix A contains a complete discussion of the methodology and data used in this analysis.

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FINDINGS: ESTIMATED EFFECT OF A PLAY-OR-PAY POLICY FOR HEALTH CARE ON EMPLOYMENT

This section of the report contains two sections:

1) Static estimate of the effect on employment of a play-or-pay policy adopted in isolation from other components of a broad health care reform proposal, using Baicker and Levy's elasticity assumption (-0.1), a plausible cost-of-compliance estimate within the current health care reform debate, and worst-case scenario (for disemployment) assumptions on all other scores;

3) Sensitivity analyses for the static estimate. How much does the estimate change if different key assumptions are changed?

It appears highly unlikely that a health care reform package including an employer contribution will lead to significant job losses. On the contrary, such policy reform is likely to cause a significant boost to employment.

STATIC PREDICTION OF EMPLOYER CONTRIBUTION'S EFFECT ON EMPLOYMENT

Below are the results from a static prediction of a play-or-pay policy's effect on employment, using a payroll tax of 6% and Baicker and Levy's assumption of a -0.1 elasticity, and worst-case scenario assumptions on all other scores.

TABLE II: FINDINGS USING A -0.1 ELASTICITY ASSUMPTION

	ESTIMATE
Potentially "at risk" workers (all those uninsured, with current wages lower than the prevailing minimum wage plus the cost of a 6% payroll tax)	3.1 million
Total employment (BLS, March 2008)[40]	146 million
Percent of workers potentially "at risk"	2.1%
Workers likely to become unemployed, with Baicker and Levy's elasticity assumption (–0.1)	48,813 (95% Confidence Interval: 41,491-56,135)
Percent of workers likely to become unemployed, using -0.1 elasticity assumption	0.03%

These findings ignore all the other expected positive effects from health care reform, including the creation of new health care sector jobs that would come even from an employer contribution adopted in isolation.

The "at risk" category includes all workers whose wages could not be dropped by 100% of the cost of compliance without "running into" the prevailing minimum wage. That is, the employer would have to increase total compensation for the worker in order to comply with both the play-or-pay policy and minimum wage law.

If the elasticity and payroll-tax assumptions are varied to their best-case-scenario and worst-case-scenario levels within the range of assumptions for which reasonable arguments can be made (elasticities varying from -0.3 to +0.1 and payroll tax rates varying from 4%-8%), lower and upper bounds can be placed on this estimate:

TABLE III: VARYING ELASTICITY AND PAYROLL TAX ASSUMPTIONS

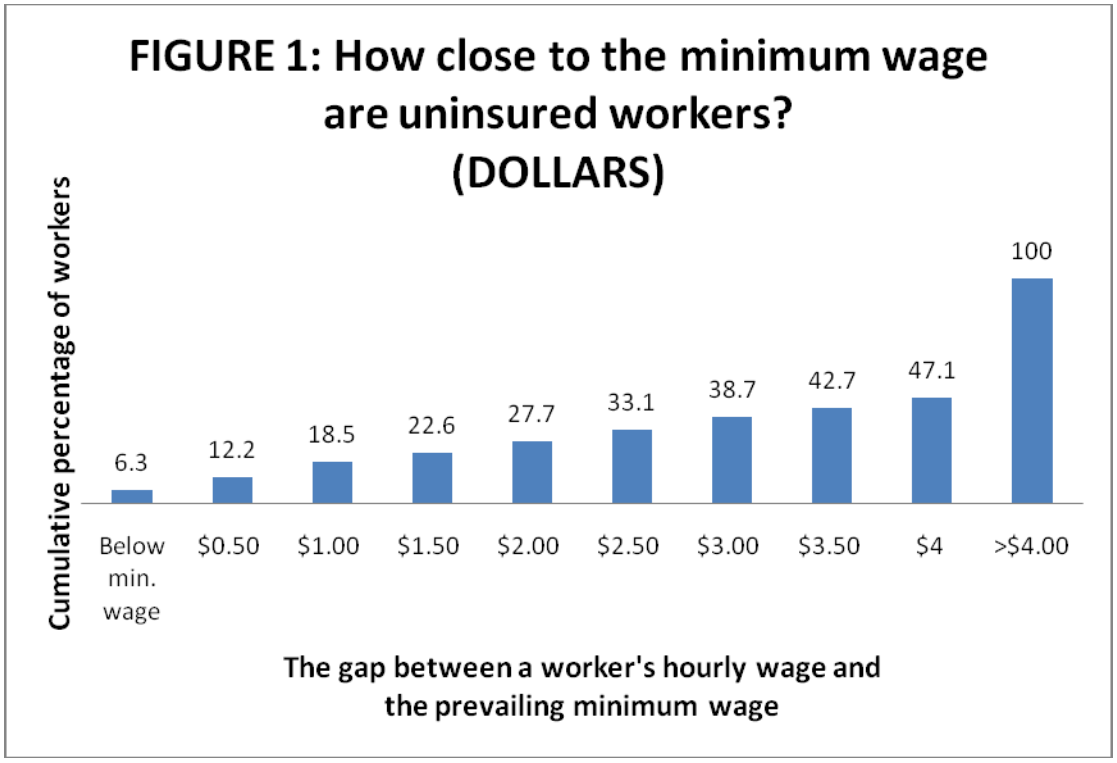
Variation in elasticity and payroll tax assumptions	Estimated effect on employment	Estimated effect, as a percentage of workers
Worst-case assumptions	-166,095	-0.10%
Best-case assumptions	+55,365	+0.04%

Again, this range of estimates – from 166,095 jobs lost to 55,365 jobs gained – *is not* the range of reasonable predictions of the effect on employment from adoption of a play-or-pay contribution. It is instead the range of reasonable predictions when one a) disregards altogether several good (but difficult to quantify) reasons to expect job gains from health care reform, b) assumes that 100% of the added costs for employers always get passed through to low-wage employees' wages, and c) assumes that there are no exemptions or sliding scales for small employers. They are extremely cautious estimates, in other words, seeking to answer the question of *how bad the job losses could possibly be*. The overall effect on employment from adoption of a hybrid-system health care reform package that includes a play-or-pay policy is likely to be both positive and large.

The 48,813 lost jobs estimate, using Baicker and Levy's -0.1 elasticity assumption, a 6% payroll tax, and worst-case assumptions on all other scores, represents less than one quarter of the prediction reported by Baicker and Levy.[41] Why such a large drop in the estimate, especially given the substantial minimum wage increases in 2007 (which would lead one to expect larger disemployment effects from a more recent analysis)? As noted earlier, Baicker and Levy – like other scholars seeking to estimate the effect on employment from an employer contribution policy – used an estimate of the per-worker per-hour cost of compliance with the contribution far in excess of the range of payroll tax levels currently under discussion in Washington. While they assumed employers would have to pay 80% of workers' health insurance premiums, or 40.6% of payroll on average,[42] this report's findings assume that "paying" employers face a 6% payroll tax.

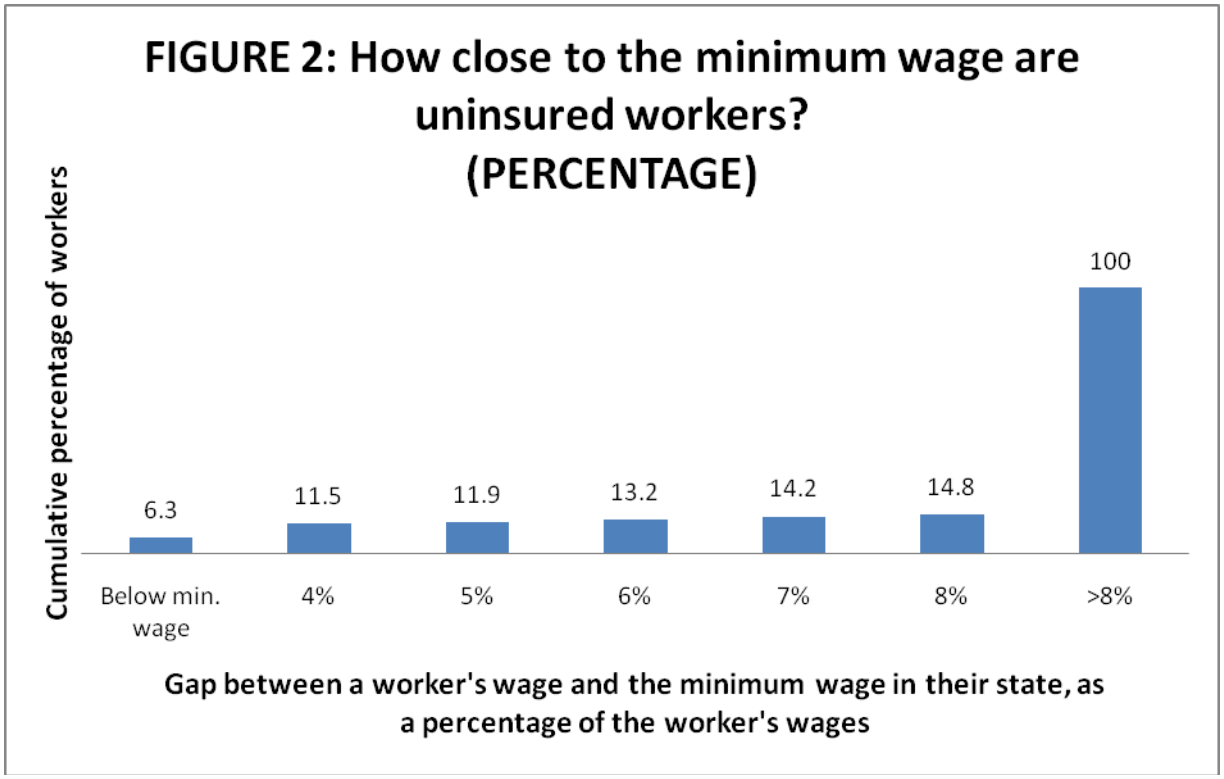
In their paper, Baicker and Levy presented a very helpful chart showing what percentage of uninsured workers have hourly wages within 50 cents of their state's minimum wage, within one dollar, etc.[43] If the per-worker per-hour cost of compliance with the contribution policy proved to be, e.g., $2.50, one could easily read off the chart what percentage of uninsured workers would be in the "at risk" of job loss

category (equivalent to the first line of findings in Table II above). Below is a similar chart, using the March 2008 CPS data instead of the 2000-2006 merged data analyzed by Baicker and Levy.



The cumulative percentages presented here are quite similar to those Baicker and Levy found, despite the differences in year and sample size.[44] With their percentage-of-premium formula for calculating the cost of compliance with the contribution, Baicker and Levy estimated that the new costs faced by employers could exceed $2 per worker per hour.

It is instructive to look at a very similar chart examining the gap between uninsured workers' wages and the prevailing minimum wage (see Figure 2 below). In this case the degrees of difference from the minimum wage found along the horizontal axis represent not dollars but percentages, and they have been chosen to illustrate the range of proposals for employer contribution levels most frequently discussed in recent years. Since these proposals stipulate the costs of "paying" as neither a fixed amount per worker per hour nor a percentage of health insurance premiums, but instead as a payroll tax, the horizontal axis shows the gap between a worker's wage and the minimum wage *as a percentage of the worker's wage*. If the gap exceeds 8% of a worker's wage, the worker has little risk of disemployment from the contribution; the employer will be able to adjust the worker's wage downwards without trouble. In all, far fewer workers fall in the potentially "at risk" zone here than in Baicker and Levy's analysis.



One notable finding illustrated by this chart is that variation of the payroll tax rate (within the range of politically credible proposals under discussion) appears unlikely to generate substantial changes in the number of people in the "at risk" group for job loss. In going from 4% of wages up to 8%, there are only a little more than three percentage points of increase in the percentage of uninsured workers whose current wages plus their employers' new health care costs add up to more than the prevailing minimum wage.

Because of the relatively small sample size of uninsured, low-wage workers with Outgoing Rotation Group data (including their labor force status, hours, and earnings) available in the March CPS, it is not possible to draw conclusions about the impacts of an employer contribution policy on workers in particular sectors, job-types, or states.

Negative effects are likely to be most concentrated among firms not currently providing ESI in industries where most of their competitors do so. To the extent that all or most competitors in a market face the new costs imposed by the contribution policy at the same time – likely to be the case in some of the sectors where opposition to the play-or-pay policy will be strongest, such as restaurants and small-scale retail – the new costs would generate no relative competitive disadvantage. Firms not providing ESI whose competitors already do so, on the other hand, may have been deriving competitive advantage from their lower personnel costs and may suffer most from the new contribution. Moreover, "firms with low rates of current health spending are more likely to be in industries such as retail, construction and other services that do not face competition from out of state or internationally."[45]

However, these are all static predictions of the effects of an employer contribution policy implausibly assumed to have been adopted in isolation from other major health care policy reforms.

SENSITIVITY ANALYSIS FOR STATIC PREDICTION

Several key assumptions, for each of which there is a range of reasonable specifications, shape the results from a static analysis of an employer contribution policy's effect on employment. Most crucially: 1) what elasticity of employment in response to mandated wage increases is drawn from the contentious, ample minimum-wage literature?; and 2) what are the per-worker per-hour costs of compliance with the play-or-pay policy? As will be seen in this section, a fairly wide range of employment effect estimates can be reached if one varies key assumptions within the range of plausible specifications. The range of results includes positive as well as negative expected effects.

Though the range of predictions drawn from reasonable assumptions is fairly wide, the most noteworthy result of the sensitivity analysis is that *even under worst-case-scenario assumptions, the predicted job losses are modest.*

In addition to varying elasticity and the payroll tax rate, in this section results from the basic methodology used in this report will be presented varying the following three other important assumptions: 1) the percentage of a required compensation increase that gets passed through to workers' wages; 2) the appropriate threshold levels of hourly pay at which to drop observations from the data-set because they are implausibly high or low; and 3) the inclusion of exemptions or sliding scales for small employers.

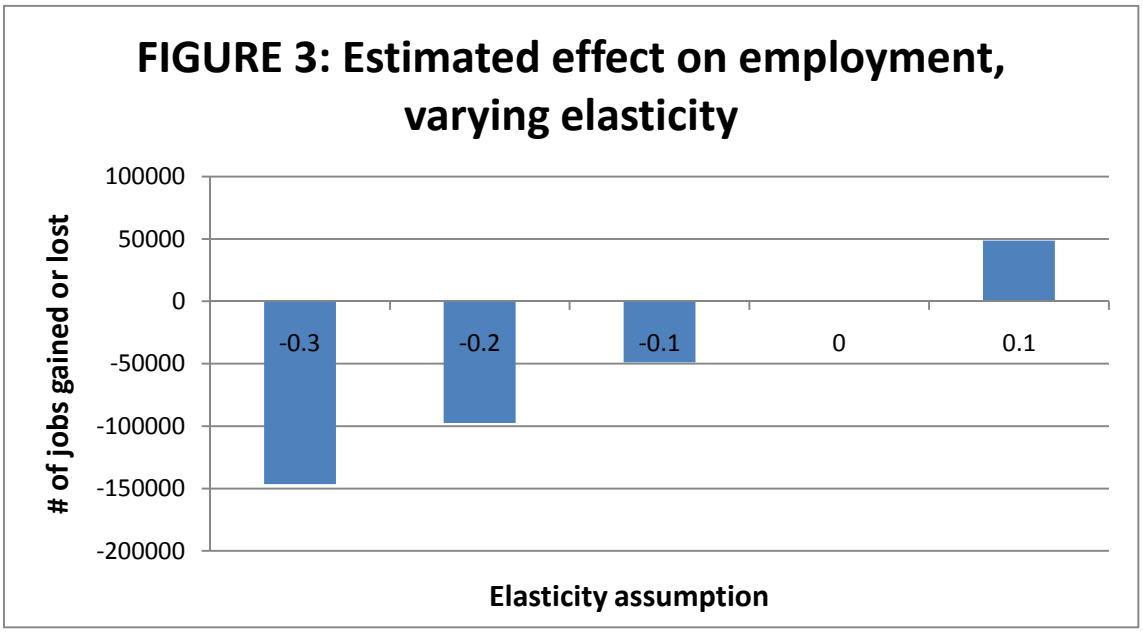
Elasticity

As discussed in the minimum-wage economics literature review section, the magnitude and even the direction of this elasticity remain matters of great dispute and empirical inquiry in economics today, more than ten years after David Card and Alan Krueger's Myth and Measurement re-opened what had seemed the settled question of the effect of required wage increases on employment.[46] While more empirical studies have estimated negative elasticities than positive ones,[47] the possibility of positive effects on the employment of low-wage workers from modest required wage increases remains a very open question in the field of minimum-wage economics. There also appear to be some basic methodological dividing lines between the studies finding negative versus no significant or positive results; panel-survey studies tend to find negative effects, while up-close studies of particular regions or industries tend to find no significant or positive effects.[48]

In any case, there is clearly a range of reasonable specifications of the elasticity that can be drawn from this burgeoning literature. Each reasonable specification comes with both an empirical basis and a stable of unsparing detractors. What could be more reasonable, then, than to vary the elasticity across the range of plausible specifications, and report the results?

In fact, the methodology used in this policy brief – as well as in prior efforts to estimate an employer contribution policy's effect on employment – provides an unusually clear illustration of the importance of providing sensitivity analyses when making use of a methodology in which disputed assumptions play a central role. Some scholars in the minimum-wage debate suggest that the most reasonable elasticity assumption to make is zero (or differs trivially from zero). In the methodology used here, derived from

the minimum wage literature by way of Baicker and Levy's study on health care employer contribution policies, multiplication by the elasticity assumption is the final step. If the correct assumption is – as many scholars argue – zero – then the predicted effect on employment will of course also be zero. This finding fruitfully draws our attention to the central role played by the elasticity specification in such an analysis.



The main findings reported earlier have been calculated using Baicker and Levy's assumption of a -0.1 elasticity. However, a strong case can be made – with compelling evidence from minimum wage research to back it up – for elasticities varying across this range, from -0.1 to +0.3. Presenting findings from this full range of assumptions seems more useful than picking any one elasticity within the range and focusing on the findings from that specific assumed elasticity.

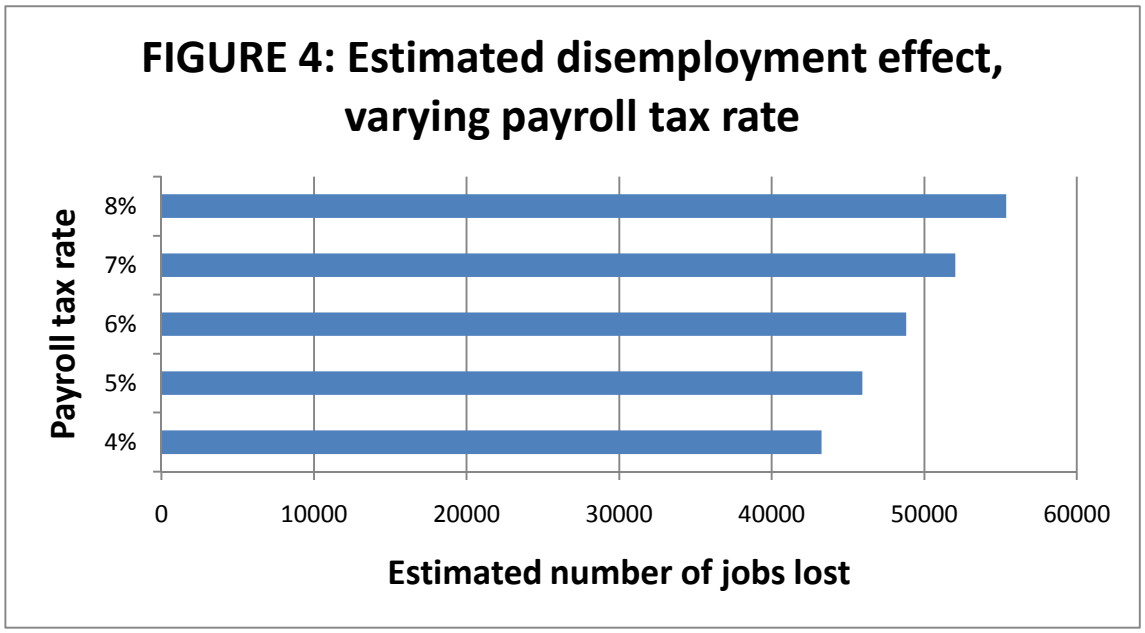
Payroll-tax level

Proponents of hybrid-system health care reforms that would include an employer play-or-pay policy have argued for a range of different levels to be set for the payroll tax. Though the full range of levels suggested runs from 4% to 8%, most recent proposals fall in the 5%-7% range.[49] Much more expensive employer-contribution schemes were proposed in the early-1990s health care reform debate – including higher payroll tax rates and the sort of percentage-of-premium formula the Clinton administration ultimately chose. But today's would-be health care reformers are pushing for lower levels of employer contribution – apparently based on lessons drawn from the experiences of the 1990s.[50] A 6% payroll tax rate has been used in calculating the main findings in this report, and in the sensitivity analyses varying other key assumptions.

In recent proposals, revenues from the payroll tax are not intended to cover the full costs of public provision of health insurance. The proposals assume that other tax revenues will be used to pay for

some of the program's expenditures, in order to keep the employer contribution level relatively low. As a result, the specific payroll tax rate included in a hybrid-system health care reform has not been a topic of much argument or disagreement, among proponents of one version or another of such reform. The basic tradeoffs to be considered in setting the level are straightforward: for any given set of standards for "playing," setting the payers' payroll tax high means more employers who currently offer ESI will continue to do so. The higher the tax is set, the more pronounced this effect will be, with a smaller amount of tax revenue from other sources needed for the public program and with a smaller number of people enrolled in the public program. A low payroll tax means more employers currently offering ESI will choose to pay instead of play, resulting in a larger number of people enrolled in the public program. The results presented below do not account for these dynamics by varying the number of employers paying versus playing; instead, like the rest of the analysis in this paper, they report the effect on employment assuming that the employers of all non-elderly workers currently lacking health insurance choose to pay rather than play.

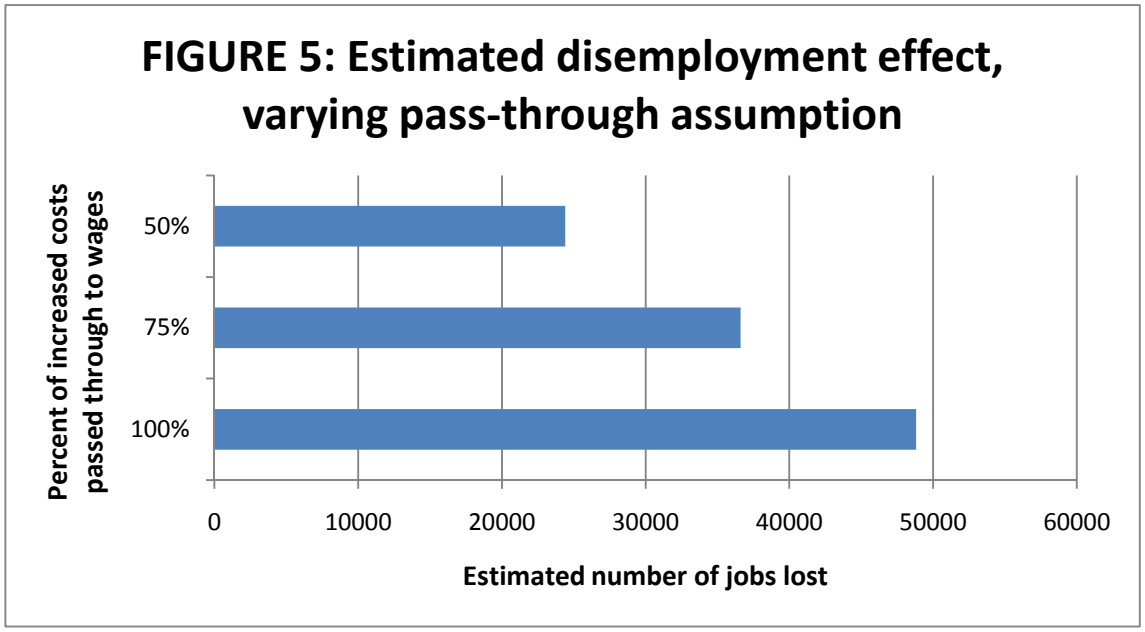
As noted earlier, the most interesting finding from varying the payroll tax rate is how small its effect on employment appears to be: the results, assuming an elasticity of -0.1, range from 43,268 (at a 4% payroll tax rate) to 55,365 (at an 8% payroll tax rate). As a percentage of employed workers in March 2008, the difference between the two ends of that range of estimates (12,097 workers) is less than one one-hundredth of one percent.



Pass-through

While most labor economists agree that most of the costs imposed by an employer contribution policy will be passed through to workers' wages under most employment circumstances, there is disagreement on whether 100% of the costs will be passed through, over what period of time the pass-through

typically occurs, and whether the extent of pass-through varies according to industry, firm type or other characteristics.[51] Some empirical studies suggest that the extent of pass-through to wages may vary with the elasticity of demand for the goods or services the firm sells and/or with whether all competitors in a market face the same mandated cost increase at the same time.[52] Because of the likely variation in the pass-through rate based on industry and perhaps other characteristics, scholars have generally not argued that an alternative pass-through rate should be assumed to apply to all employment situations. Thus the alternative pass-though assumptions used below are not scholars' estimates of the actual average pass-through rate but merely illustrative variations in the rate, to show how the disemployment effect changes if we relax the strong assumption of 100% pass-through applying to all workers in all industries.



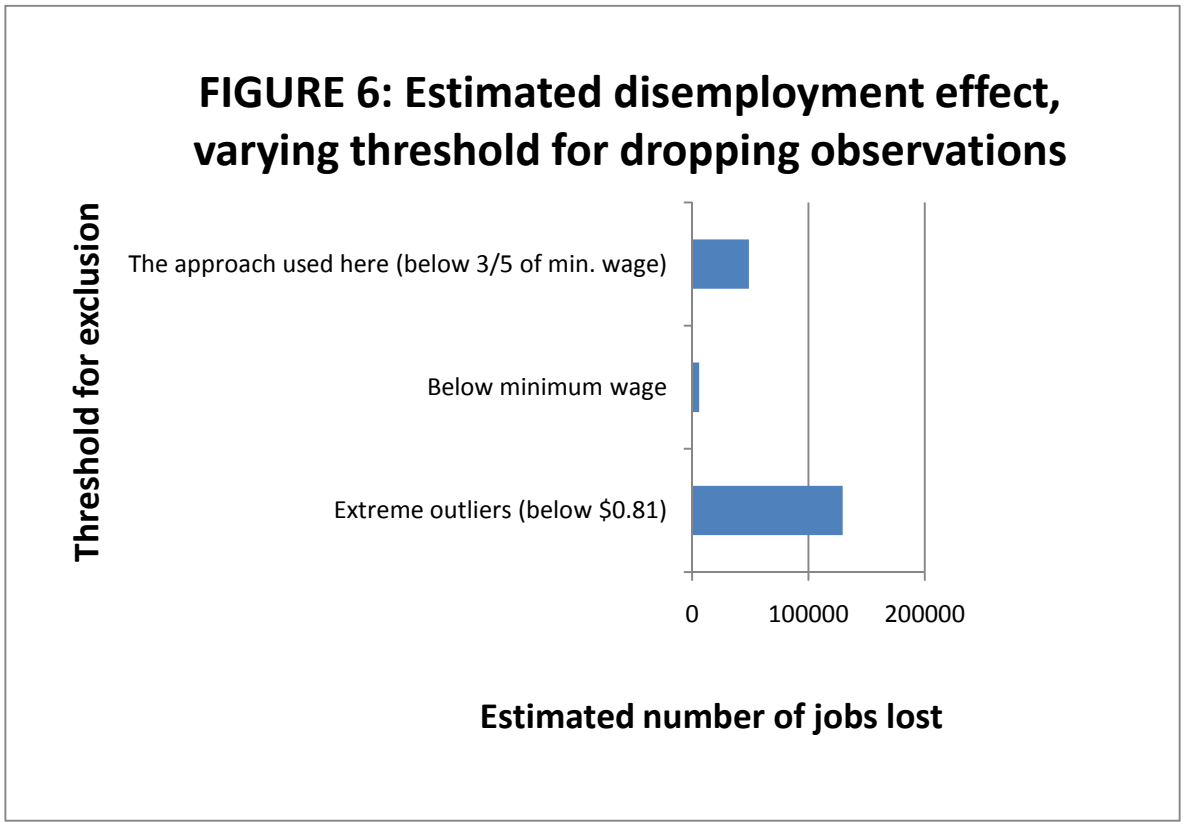
When the city of San Francisco approved the first city-level employer contribution policy for health care in the country, called "Healthy San Francisco," in 2007, restaurant owners were among its most vocal opponents. While Healthy San Francisco is too new a program for any strong conclusions to be drawn from it, restaurant owners in the city have provided compelling evidence that in some cases 100% of the costs of compliance with such a policy are not passed through directly to workers' wages. They have added a new line to their receipts, explaining the increase in the cost of a meal by showing customers the added cost of Healthy San Francisco payments as a separate line item. In restaurants and other industries where large numbers of workers lack ESI, the simultaneous increase in costs faced by many competitors may make it easier for them to pass these costs along to consumers in prices, up to and including making the pass-through visible and explicit.

Plausible range of hourly wages

The reported hourly wages for some workers in the CPS – whether reported in hourly terms in the CPS data or imputed from usual weekly hours and earnings – fall below the prevailing minimum wage in

their state. There are several exemptions from the Fair Labor Standards Act and other minimum-wage laws, and there are also workers with very long hours but low salaries and workers paid below-minimum-wage rates "under the table," so it is not surprising that some of the reported hourly wages in the CPS are below the minimum wage.

There are two problems with including all reported hourly wages in the analysis, however. First, some reported hourly wages are so low or high as to be simply implausible. Most scholars using CPS earnings data to study low-wage workers therefore exclude all observations below and above certain very-low and very-high levels (e.g., excluding those with reported wages below $0.81/hour and above $161.45)[53], to prevent noise from these outliers from skewing their findings. Second, the purpose of the analysis here is to see how many non-ESI-providing employers will "run into" the minimum wage when seeking to adjust workers' wages downward in response to the new costs of compliance with a health care contribution policy, in order to predict the effect on employment. It seems reasonable to assume that if a worker is receiving below the minimum wage today, his employer simply would not have this problem; the employer should be able to adjust the workers' wages downward by 100% of the added cost from the payroll tax for that worker. Moreover, in cases where below-minimum-wage pay is part of a general non-compliance with labor law – "off the books" employment – it is likely that employers will not comply with the employer play-or-pay policy either. The main findings in this policy brief, and the findings reported in the other sensitivity analyses, exclude workers with reported hourly wages below 3/5 of the minimum wage in their state. This definition of what hourly wages are "plausible" is taken from a recent Chicago Federal Reserve study on the minimum wage.[54] It could be argued, however, a) that all workers below the extreme-outlier level ($0.81 per hour) should be included in this analysis, on the assumption that minimum wage laws will be more vigorously enforced after the adoption of a play-or-pay policy, or b) that all workers below the minimum wage in their state should be excluded, since their employers are not likely to run into the minimum wage when adjusting wages in response to the play-or-pay policy. The findings from running the main analysis (using a 6% payroll tax, -0.1 elasticity, and 100% pass-through) with such alternative thresholds are presented below.



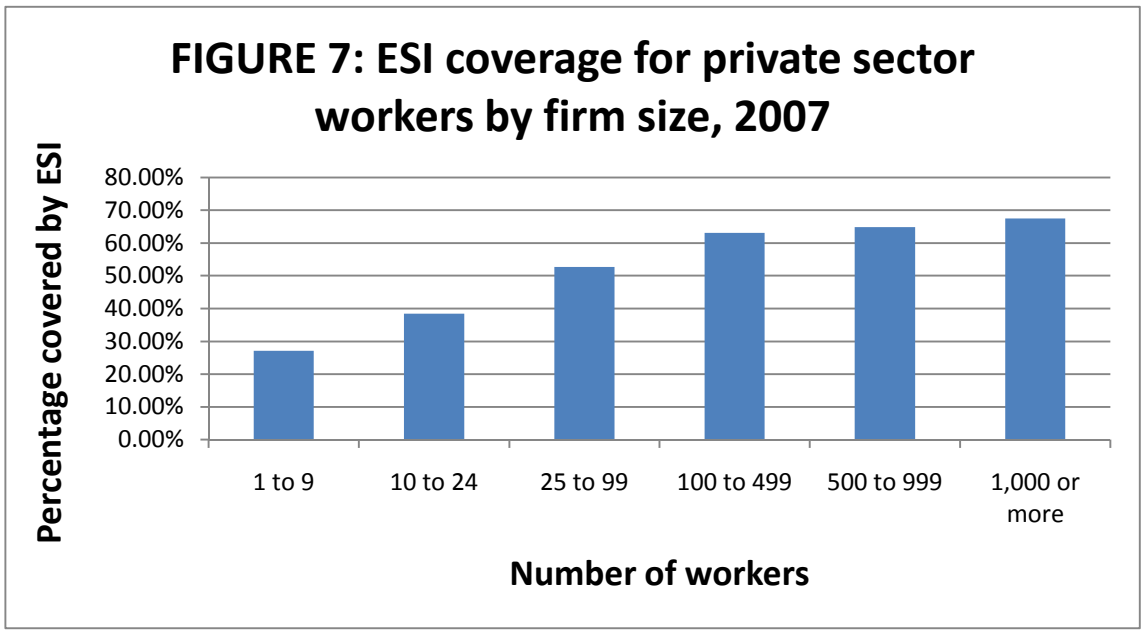
As the chart shows, variation in this assumption has a significant effect on the findings. If it is assumed that only workers currently paid the minimum wage or higher will be at potential risk of job loss after adoption of a play-or-pay policy, the estimate of job losses becomes vanishingly small.

While it is hard to imagine why the employers of workers making $1 an hour today would be constrained by the minimum wage in adjusting those workers' wages in response to a health care employer contribution policy (and indeed it seems more reasonable to assume that those employers would not comply with the policy), that is not the only reason to set a threshold higher than the extreme-outlier level. Running the analysis for each year from 2004 to 2008, but excluding only those observations below the extreme-outlier threshold, produces annual estimates of the disemployment effect that do not vary with minimum-wage levels in the way simple economic reason leads us to expect. That is – unlike the annual estimates produced using the 3/5-of-minimum-wage threshold – the estimated disemployment effect does not reliably increase after the minimum wage has increased, when reported hourly wages below 3/5 of the minimum wage but above the extreme-outlier threshold are kept in the data-set. The threshold used throughout this report – 3/5 of the relevant minimum wage – seems a reasonable, middle-of-the-road assumption to make, given the findings from varying this assumption.

Exemptions and sliding scales for small employers

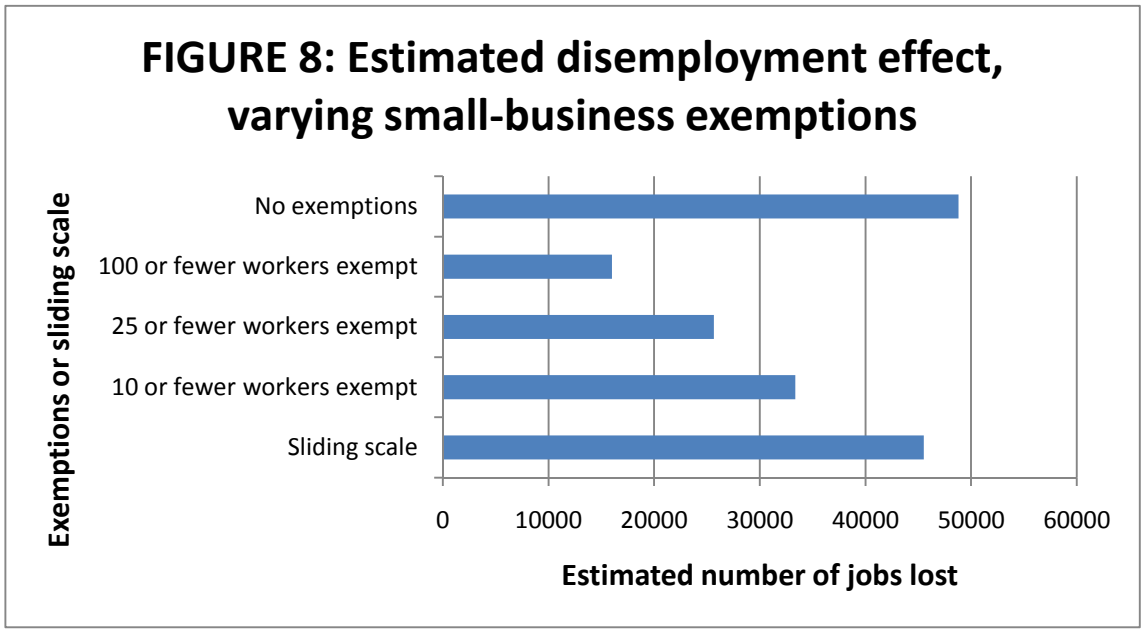
Because most small businesses do not currently provide health insurance benefits to their workers, many policymakers have expressed concerns that any negative effects of a play-or-pay policy could be concentrated among them. Some – including President Obama, in his campaign proposal for health care reform[55] – have proposed exemptions or sliding scales to reduce this expected impact on small businesses.

Fifty percent of the uninsured are employed by businesses with fewer than 100 workers.[56] The rates of ESI coverage rise rapidly with the number of employees in a firm, up to 100 employees (and continue to rise, though less rapidly, after that):



[Based on analysis of CPS data presented in: Gould, Elise. 2009. "Health Reform in the 21st Century: Employer Sponsored Insurance." Testimony before the House Committee on Ways and Means, April 29, 2009. Viewed at http://www.epi.org/page/-/pdf/20090429_gould_testimony.pdf on May 4, 2009, p.9.]

Obviously, as Baicker and Levy have noted, "any exemptions … will dilute both the positive and negative effects of a contribution."[57] The Obama administration has offered no formula for exemptions or sliding scales, nor any definition of "small employer," so this section of the sensitivity analysis analyzes a few simple, illustrative variations in policy design rather than a set of actual proposals under discussion.



The sliding scale used for this calculation set 3% as the payroll tax rate for firms with 10 or fewer employees and 4% as the rate for firms with 11-25 workers, with 6% as the rate for all larger employers.

As the chart shows, a full exemption for small employers would reduce the estimated job loss from an employer contribution considered in isolation – at the obvious cost of either excluding employees in small firms from health insurance coverage or greater public expenditures drawn from other tax revenues. A sliding scale, on the other hand, does not appear likely to change the disemployment effect much – as the earlier chart showing the estimates from varying the payroll tax rate would lead one to expect.

JOB-CREATING EFFECTS OF HEALTH CARE REFORM

There are at least five reasons to expect significant net job gains from comprehensive health care policy reform along the broad outlines proposed by President Obama, Senator Baucus, and others – reforms that would include a play-or-pay employer contribution as one among several key policy components. Though it is not possible to model these positive effects on employment with micro-level data in order to deliver a simple prediction (as was done with the effect of an employer contribution viewed in isolation), both the economics literature and common sense provide assistance in thinking through the likely overall effects on employment from the kind of health care reforms under discussion. If even one or two of the five effects described comes to pass, the boost to employment is likely to surpass in magnitude even the worst-case negative effect on employment predicted for the employer contribution, making the net effect of a hybrid-system health care reform that includes an employer contribution positive. If more than one or two of them come to pass, or if the magnitude of any one of them proves great, the net effect on employment will be both positive and large. This section will consider each of the five expected boosts to employment in turn.

1) *Creation of new health care sector jobs.*

   The provision of health insurance coverage to tens of millions of the currently uninsured, and improved health insurance coverage to millions more (through the Exchange and regulated minimum quality standards for private insurance) would generate increased demand for health care services, and as a result increased demand for labor in health care industries. As economist Jonathan Gruber notes, such a reform would

   > drive demand for high-paying, rewarding jobs in health services. Most reform proposals emphasize primary care, much of which can be provided by nurse practitioners, registered nurses and physician's assistants. These jobs could provide a landing spot for workers who have lost jobs.[58]

   This increase would be partially offset, however, by declines in employment in the private health insurance industry – a leading sector for gains in employment over the last decade[59] – since the number of people with private coverage would likely decline and the number in more administratively efficient public coverage would rise.[60] As the Congressional Budget Office has noted, "substantial reduction in administrative costs would probably require the role of insurance agents and brokers in marketing and selling policies to be sharply curtailed and the services they provide to be rendered unnecessary."[61]

2) *Improved worker productivity.*

   Poor health diminishes workers' productivity. The provision of quality health insurance coverage to all those workers currently uninsured and underinsured is likely to boost their productivity.

This can happen through decreased turnover, decreased absenteeism, increased employee morale, or a combination of the three. "Workers' absences are expensive to employers," notes Ellen O'Brien. "Finding temporary replacements is costly; the operation of production teams may suffer, and assets may be left idle – and sick employees may be less productive when they are at work." She also calls attention to surveys in which large majorities of employers, large and small, have said that "offering health benefits improves the firm's performance." [62]

The security of knowing that one's personal finances will not be wiped out by illness or injury may be an important contributor to this enhanced productivity. Katherine Baicker and Ambitabh Chandra insist on the importance of "the security that insurance provides against the uncertainty of unknown health care expenses. The value of this financial smoothing alone is estimated to be almost as much as the cost of providing people with insurance."[63]

For all these reasons, it is in those industries where workers currently lacking quality health insurance are most concentrated that increases in worker productivity will likely be largest. In many cases, they should be large enough to produce not only increased profits but, through increased profits, the possibility of hiring of more workers.

3) *Improved efficiency of labor markets*.

Because of a well justified fear of losing health insurance for themselves and their dependents, many workers remain in jobs they would otherwise have left. The prevalence of this form of "job lock" would be greatly reduced by universal health insurance coverage, improving the efficiency of labor markets.[64]

Moreover, many of the information-gathering costs involved in striving to understand the (often very difficult to assess) differences in health benefit packages offered by different employers, and simply seeking information on which employers offer ESI, would be eliminated or at least reduced by the establishment of an insurance Exchange open to all. This would make the discovery of mutually beneficial matches between employers and employees easier to achieve, reducing the rate of frictional unemployment.

In a comprehensive review of studies on job mobility and health insurance, Jonathan Gruber and Brigitte Madrian conclude that "while there is some division in the literature, the most convincing evidence suggests that health insurance plays an important role in job mobility decisions." More specifically, they find a common range of estimates in studies seeking to quantify the reduction of job mobility – the "job lock," in other words – caused by some jobs providing health insurance while others do not. Not all studies examining this question have found such an effect, but several converge around an estimate of a 25-30% reduction in job mobility.[65] If such estimates are correct, the efficiency gains from elimination of this job lock could be quite substantial, allowing many employers to hire more workers.

As careful readers will have already discerned, there is some overlap between the gains to be expected from decreased job lock and the gains to be expected from increased worker productivity – another of the reasons quantification of such effects, much less their inclusion in a microdata-based analysis, proves so challenging.

4) *Savings for firms that switch from "play" to "pay."*

Any employer currently providing ESI at a cost greater than the cost of compliance with the "pay" option in the employer contribution policy will save money if it chooses to "pay." The vast majority of firms providing ESI do so at a cost greater than the likely cost of paying the payroll tax[66], of course, and there is little reason to expect that all or even most of these firms will switch to the "pay" option if such a policy is adopted. Many firms will continue to offer especially high-quality health benefits to their workers as part of their recruitment and retention strategy, and others will do so because they have signed collective-bargaining agreements or other contracts committing them to a particular benefits package. Some other currently-"playing" firms, however, will choose to "pay." Whatever they choose to do with the savings – invest in capital, hire more workers, increase pay, distribute it as dividends to shareholders, etc. – some of those savings are bound to lead to job gains, whether directly through hiring or indirectly through economic growth that generates more employment.[67] It is interesting to note here that the set of microeconomics assumptions justifying the expectation of 100% pass-through of new benefits costs to worker wages would also lead to an expectation that 100% of the savings from reduced benefits costs thanks to the switch from "play" to "pay" will show up in wage increases for workers.

There should be some savings for the firms continuing to "play" as well, due to decreased reliance on coverage of dependents through one family member's employer.

Since "the net effect on employment of low-wage workers of the Obama health plan is the balance between … cost reduction for firms providing insurance and the 6 percent cost increase for medium and large [if there's an exemption for small businesses] firms not providing insurance," UC-Berkeley economist Brad DeLong has argued, "based on numbers of people, the cost reduction is significantly more important than the required payment."[68] In an article co-written with DeLong, David Cutler and Ann Marie Marciarille estimate that savings from reduced benefits costs will "allow employers to hire some 90,000 low-wage workers currently without jobs"[69] – nearly *double* the job losses predicted from static analysis of the employer contribution using a -0.1 elasticity assumption.

5) *System-wide cost savings.*

While just as difficult to conclusively quantify and model as the prior four effects, "bending the curve"[70] of health care cost growth would have far and away the largest positive effect on employment if proponents of varied cost-control measures succeed in getting some of those measures passed into law as part of health care reform.

Most centrally, a public plan operating alongside private insurance options in an Exchange could introduce real competition on price and quality into a market (health insurance) where competition has been scarce.[71] Several design choices would play a major role in determining

whether the reform has this intended effect, in particular the extent and nature of regulation of private insurers, the requirements for employers to qualify as "playing," and the decision on whether to allow the public plan to bargain with providers like Medicare does.

The public plan is just one of the major cost-control measures proposed in the types of health care reforms on which President Obama's proposal is modeled. This is not the place to provide a survey of the varied cost-control proposals under discussion and their relative strengths and weaknesses. More important for the analysis at hand, the Lewin Group's micro-simulation modeling of both the "Health Care for America" plan and the Commonwealth Fund's "Building Blocks" plan – similar hybrid-system proposals, incorporating several cost-control measures and centrally featuring a public plan – finds very substantial savings in national health spending from adoption of either plan. For example, Lewin projects 30-40% lower premiums to be achieved by a public plan empowered to bargain with providers, compared with today's private insurers.[72] Overall, they project as much as $3 trillion in cumulative slowed spending by 2020, if a whole package of reforms in the "Building Blocks" proposal is pursued aggressively.[73] That these savings would be realized, according to the Lewin Group, while achieving universal, high-quality health care coverage and retaining health care consumers' choice of medical providers gives the lie to typical objections that cost controls imply "rationing" or massive reductions in quality. Returning $3 trillion in wasted spending to people's pockets would – almost regardless of who it went to or what they chose to do with it – generate both economic growth and the possibility of large increases in employment and/or wages.

Even if the job gains to be expected from these five effects of a hybrid-system health care reform are seriously overstated here, and even if some of them prove flat-out incorrect, it seems unlikely that the total positive effect on employment remaining after subtracting those exaggerated or erroneous projections is smaller in magnitude than the very modest job losses predicted through static analysis of the employer contribution using reasonable elasticity and cost-of-compliance assumptions. While it is difficult to turn any of these projected job gains into strong quantitative predictions, common sense suggests that they likely add up to job gains greater in absolute value than any losses to be expected from the play-or-pay policy. Dire predictions regarding mass layoffs caused by an employer contribution policy should at least be tempered by acknowledgment of these possible effects on employment pushing in the opposite direction.

CONCLUSION

It is highly unlikely that a health care reform package including a play-or-pay policy will lead to job losses. On the contrary, such policy reform is likely to cause a significant boost to employment.

Even when all the expected positive effects on employment from other policy components of health care reform are disregarded, the range of reasonable estimates for the effect on employment of a play-or-pay policy adopted in isolation runs from small positives to small negatives. With Baicker and Levy's assumption regarding the elasticity of employment to a mandated wage increase and a 6% payroll tax, together with strong assumptions of 100% pass-through to wages and no exemptions for small businesses, the job losses predicted by such a static analysis are 48,813, or 0.03% of employed workers. This is smaller than the average revision the Bureau of Labor Statistics makes to each month's estimate of employment in the U.S.[74]

If all key assumptions are set to their worst-case-scenario levels (for the magnitude of expected disemployment), the prediction becomes 166,095 jobs lost, or 0.1% of employed workers. For comparison, the manufacturing sector alone lost approximately that number of jobs in the month of March 2009. Total U.S. job losses that month were 663,000.[75] When one recalls that a prediction of 166,095 jobs lost arises from the improbable convergence of several worst-case-scenario assumptions, and that – unlike current recessionary job losses – the pain of any job losses from health care reform would need to be weighed against the benefits of tens of millions more people gaining the security of access to quality health coverage, the effect on employment from a play-or-pay policy simply does not constitute a serious, rational argument against health care reform.

When the full expected effects of health care reform on employment are added back into the picture, evaluation of such arguments becomes even easier. If only one or two of the five reasons discussed in this report to expect job gains from a hybrid-system health care reform that includes an employer contribution policy prove correct, the net effect of the reform on employment would likely become positive. If more than one or two prove correct, the net effect on employment will be positive and large.

In short: concerns over job losses from comprehensive health care reform proposals that include play-or-pay employer contribution policies are overstated and unfounded.

The debate over health care reform should focus on policy questions with great economic, social and political significance, which are plentiful in the area of health care reform – an attempted overhaul of a sector of our economy as large, in dollars, as the entire economy of France.[76] Because the net effect on employment from a hybrid-system health reform is likely to be positive, and even under extremely improbable worst-case-scenario assumptions a play-or-pay contribution policy considered in isolation would mean job losses for one-tenth of one percent of U.S. workers, concern over an employer contribution's negative effect on employment does not qualify as such a policy question.

APPENDIX A: METHODOLOGY

The methodology used in this paper is based in part on the approach used by economists Katherine Baicker and Helen Levy in a 2007 National Bureau of Economic Research (NBER) study.[77] By drawing on the extensive economics literature on the effects on employment of minimum wage increases, Baicker and Levy developed a compelling and straightforward method for estimating the effects on employment of an employer contribution policy for health care benefits. As the authors themselves noted, other scholars wishing to vary some of the key assumptions they made can easily do so while making use of a similar methodology and data-set.[78]

In summary terms, this methodology treats the added per-worker per-hour costs those employers not currently providing health insurance would face under a new health benefits contribution policy as reductions in the workers' hourly wages. If the hourly wages of any non-elderly worker currently lacking employer-provided health insurance can be reduced to reflect the full per-hour cost to the employer of compliance with the policy, then it is assumed here that such a downward adjustment of hourly wages will be made. If, however, such downward adjustment "runs into" the prevailing minimum wage in that worker's state – in other words, if compliance with both the prevailing minimum wage law and the new health benefits contribution policy would require the employer to raise the worker's total hourly compensation – then the worker is considered potentially "at risk" of losing her job.

By multiplying the percentage wage increase effectively mandated for each worker in this "at risk" category by an elasticity estimate taken from the minimum-wage literature, one can predict the static effect on employment from adoption of the policy.

Among several critical assumptions shaping the results of such a prediction, the two most important are 1) the cost to employers of compliance with the contribution policy, and 2) the elasticity of employment to mandated wage increases. The most important difference between this report and prior efforts to predict the effect on employment of a play-or-play policy for health care using a similar method is the expected cost of compliance with the contribution for employers:

TABLE I: WIDE VARIATION IN COST OF COMPLIANCE

Study	Cost of compliance assumed, as a percentage of low-wage workers' payroll
Baicker and Levy 2007[79]	40.6%
Burkhauser and Simon 2007[80]	42%[81]
Yelowitz 2006[82]	42%
This report (using recent federal health care reform proposals that include an employer contribution)[83]	6%

Prior studies have used cost estimates from state-level health care reform proposals and early-1990s federal health care reform proposals – calculated as a percentage of health care premium costs or as a fixed hourly fee per worker – instead of from the kinds of health care reform proposals currently under

discussion in Washington. Current proposals that incorporate a play-or-pay policies would require "paying" firms to pay a modest, fixed percentage of payroll to help fund public provision of coverage. Per-worker per-hour costs of compliance with such a policy are a small fraction of the expected costs of compliance with a percentage-of-premium requirement.

Since the prior studies used data from before the 2007 minimum wage increases, all else equal the analysis presented here should be expected to produce larger disemployment estimates than the prior studies.

Treating the employer contribution in isolation

Estimation of the full effects on employment from a health care reform package that includes a play-or-pay policy poses considerable practical challenges. First, there are *several* major policy components within each federal health care reform proposal. A play-or-pay employer contribution policy is just one among these. Each policy component can be regarded as having a distinct effect on employment, yet the total net effect from implementation of a multi-component reform will depend on complex, dynamic interactions *among* the different policy components.[84] As Henry Aaron has observed, "the complexity of interactions is beyond our analytic and predictive capacities."[85] Second, there is considerable uncertainty and disagreement over, and ongoing political negotiation regarding, the specific shape each policy component in a broad health care reform package should take.[86] By limiting the analysis here to one policy component – the expected effect on employment from a play-or-pay policy, *as though such a policy were adopted in isolation,* with no other significant changes made to health care policy – it not only becomes possible to focus on that one policy component's effect on employment, but also to vary the design of that policy component and see how such variation changes the predicted effect. An attempt to similarly vary the specific design elements for each major policy component of a broad health care reform package would – dynamic interactions among the policy components aside – generate little clarity.

Because of this static, as-if-it-were-adopted-in-isolation approach, the calculations made here omit altogether the positive effects on employment expected from a broad health care reform proposal along the general outlines proposed by President Obama or Senator Baucus. These expected positive effects on employment are discussed in a separate section, drawing on relevant academic literature; but they are not incorporated into the primary analysis, which involves simple, static prediction of the contribution's effect on employment.

Which workers are at potential risk of job loss?

If a worker already has health insurance through her employer, and that health insurance costs the employer more per-worker per-hour than the cost of paying the new payroll tax rate, there is little reason to worry that the worker might lose her job as a result of the policy. And most employers currently offering health benefits do so at an average per-worker per-hour cost well in excess of the payroll tax levels under discussion.[87]

The employers of many workers in this category (those receiving ESI at a per-worker per-hour cost to the employer greater than the cost of paying the payroll tax) will continue to provide ESI. They will

"play," because high-quality health (and other) benefits play an important role in their recruitment and retention of employees (as one would expect in normally functioning labor markets, especially given the tax exemption for employer spending on health benefits), and/or because collective-bargaining agreements or other contracts commit them to continue providing such benefits. Other employers in that category (paying more per worker per hour than the payroll tax would cost them) will choose to "pay" instead, reducing their spending on employee health benefits. In either case, the worker retains both health insurance coverage and her job, with the employer either facing no new costs or saving money on health benefits.

Even if the average costs of health benefits in some firms mask the provision of low-cost or no ESI to low-wage workers (while those higher up in the firm receive generous benefits packages), such firms would still be in a position to comply with the policy by either reducing somewhat their spending on ESI for high-income workers in order to get their spending on ESI for low-wage workers up to the "play" standard or saving money through dropping ESI and "paying" instead.

In contrast to this group, non-elderly workers who currently lack ESI are the group most likely to be at risk of job loss from a play-or-pay policy, because the policy may increase their effective total compensation (if their wages are lower than the prevailing minimum wage plus the cost to their employer of "paying"). The analysis in this report follows Baicker and Levy in limiting its focus to this group of workers: non-elderly workers who currently lack ESI.[88] It is reasonable to assume that nearly all employers who currently do not provide health insurance to their workers will "pay" instead of "play," since average per-worker per-hour costs to the employer of providing ESI exceed the payroll tax rates being considered for "payers."[89] The only reasons currently non-"playing" firms would choose to play under an employer contribution policy would be if 1) they could provide ESI of comparable quality to the public plan for a cost lower than the payroll tax rate (highly unlikely, unless they employ hundreds of thousands of workers), and 2) they decided to change their approach to recruitment and retention of workers altogether (a change unrelated to the contribution).

There is a second group of workers at potential risk of job loss from the contribution policy, a group not included in the analysis presented in this report. Their omission deserves some discussion here. This group is of workers currently receiving ESI, but at a per-worker per-hour cost to their employer that is lower than the cost of paying the new payroll tax. Just as employers of workers with no health benefits would like to pass the full cost of compliance with an employer contribution policy along to their workers in the form of reduced wages, employers providing health benefits at a cost lower than the payroll tax would like to pass the difference between their pre-contribution and post-contribution health benefits spending per worker per hour along to their workers in the form of reduced wages. While fewer such employers will "run into" the prevailing minimum wage in making this adjustment, and those that do run into it will face smaller effective increases in compensation (compared to employers not providing ESI prior to the policy), some number of workers receiving low-cost ESI today should be included in the "potentially at risk of job loss" category. They are excluded from this analysis because of practical obstacles to their inclusion, not a judgment that there are unlikely to be any job losses among such workers. However, there is good reason to expect that only a very small percentage of workers fall into this category.

Employers' spending on health benefits for their workers varies greatly by sector and job-type, both among and within firms.[90] However, given the high average costs to employers of providing health

insurance and the low payroll tax rates currently being considered for inclusion in an employer contribution policy, the percentage of workers falling in the category of interest here (receiving ESI, but at a per-worker per-hour cost to the employer that is lower than the payroll tax rate) is likely very low. The payroll tax rates under discussion range from 4-8%, with the high end of that range rarely mentioned and therefore improbable. But the median employer cost of providing ESI, as a percentage of payroll, was 11% in 2005, the most recent such data available; and that percentage has likely increased in the four years since, given the steady growth rate (far in excess of general inflation) of health care costs. Only one in four workers with access to health benefits had employer ESI costs of 6.6% of payroll or less in 2005. Average health care costs for small firms with 25-50 employees that provide health coverage were 10.6% of payroll in 2005, and higher than that percentage for all other firm sizes (including firms with 24 or fewer employees).[91]

Data on health benefit costs for employers as a percentage of payroll for 2007 and 2008 is not yet available, so it is not possible to match the individuals in the CPS used here with health benefit costs data from the Medical Expenditure Panel Survey (MEPS) *after the minimum wage increases of 2007*. If the payroll tax rate gets set at 4% or 5%, the omission of workers currently provided with low-cost ESI from the analysis here is unlikely to matter: it can be reasonably assumed, based on employers' costs for providing health benefits in 2005 and the growth rate of health care premiums, that virtually no employers currently provide ESI at an average cost below 5% of payroll. If the payroll tax rate is instead set at the high end of the range of rates under discussion (7% or 8%), there may be some potentially "at risk" workers in firms currently offering ESI (but at a cost below the cost of compliance with the contribution policy). It is useful to recall, however, that in order for such a worker to be potentially at risk, the difference between their employer's current health benefit costs as a percentage of payroll and the payroll tax rate must be larger than the difference between the worker's current wage and the prevailing minimum wage. Even at the extreme of an 8% tax rate, this is likely to be a quite small group of workers; and the effectively mandated compensation increase for workers in that group – the percentage increase in compensation by which the assumed elasticity would be multiplied – is likely to be extremely small.

Data

This report makes use of the March 2008 Current Population Survey (CPS), conducted by the U.S. Census Bureau.[92] The CPS is a monthly survey with a national sample of approximately 60,000 households[93], covering all 50 states and Washington, D.C. Each month's survey collects detailed demographic information about all respondents, and detailed labor-force status, hours, and earnings information for one-fourth of the monthly sample (known as the Outgoing Rotation Groups (ORGs)). In March of each year, as part of the CPS's Annual Social and Economic Supplement (ASEC), all respondents are asked a series of additional questions about health insurance. When combined with the weights provided by the CPS, this micro-data allows for national-level analyses based on detailed information about individuals – in the present case relying especially on their earnings and health insurance information.

While CPS respondents are asked about their current labor-force status, hours and earnings, the ASEC questions regarding health insurance refer to the prior calendar year – in the case of the March 2008 survey, 2007. This lag between the time-frame of reported income and work variables versus the time-

frame of reported health insurance variables presents a potential problem for the methodology used here, which relies on data from the March 2008 CPS. According to the Census Bureau, however,

> because health insurance coverage can change over the course of a year, answering questions about this long reference period [the preceding calendar year, i.e.] may lead to response errors. For example, some people may report their insurance coverage status at the time of their interview rather than their coverage status during the previous calendar year.[94]

Health economist Katherine Swartz found that when CPS health insurance information is viewed as referring to the prior calendar year, it underreports health insurance coverage considerably compared to three other surveys of health insurance. If the CPS information is viewed as a point-in-time estimate, however, it agrees with the other surveys.[95] The Census Bureau and Congressional Budget Office reach similar conclusions.[96]

While a) the possibility of a lag between the job information and health insurance information and b) the relatively small sample size (51,738 total observations with ORG data for March 2008) represent two limitations of an analysis that uses a single month's CPS data, the use of only one month's data offers benefits as well. It ensures the randomness of the sample, whereas merges of CPS observations across months lead to the loss of some observations with no ability to be sure that the resulting estimates are not biased by the similarities among lost observations.[97] Because of the federal minimum wage increases beginning in January 2007, and several state minimum wage increases since then as well, it is important that this report makes use of the most recent available March CPS data, from March 2008. Unlike prior studies seeking to predict the effect on employment from an employer play-or-pay policy for health care, this report is able to take into account these higher minimum wage levels, which should exacerbate any negative effects on employment from such a policy.

A few important assumptions

Each of the following six assumptions may bias the prediction from the primary analysis conducted here, in most cases in the direction of overstating the negative effect of the policy on employment. The first two of these assumptions will be varied in the sensitivity analysis section.

1) *100% pass-through of increased costs imposed by the contribution policy to workers' wages*. While most labor economists agree that most of the costs imposed by such a contribution will indeed be passed through to workers' wages, there is disagreement on whether 100% of the costs will be passed through, over what period of time the pass-through typically occurs, and whether the extent of pass-through varies by industry, firm type, or other characteristics.[98] Some empirical studies also suggest that the extent of pass-through to wages may vary with the elasticity of demand for the goods or services the firm sells and/or with whether all competitors in a market face the same mandated cost increase at the same time.[99]
2) *No exemptions or sliding scale for small businesses*. Full or partial exemptions from the policy for small firms would of course reduce any negative effect on employment. While the Obama administration has offered no specific proposal regarding exemptions or sliding scales, and it has not stated its definition of "small business," the president's campaign proposal for health care reform promised to exempt some small businesses from the policy.[100]

3) *100% tradeoff between wages and benefits*. Counter to standard microeconomic theory, the results from several empirical studies "point more to correlations between wages and benefits than to tradeoffs."[101] As Harvard public policy professor Brigitte Madrian concludes: "recent studies all concur that there is a trade-off between wages and health benefits, but the magnitude of the trade-off, that is, whether workers are willing to accept a dollar-for-dollar reduction in wages in exchange for receiving health benefits or something less, is still open to question."[102] If workers do not treat wages and health benefits as equivalent, substituting one for the other based on their dollar value, then the predictions from an analysis assuming a 100% tradeoff might be wrong. In this case the direction of the possible bias is not clear.
4) *Accuracy of reported weekly earnings*. While the accuracy of survey responses is obviously a key assumption in any analysis relying on survey data, CPS respondents' reporting of their weekly earnings deserves special mention here. This is because some studies have found "evidence that respondents tend to underreport their weekly earnings."[103] If such studies are correct, the estimates of job losses presented in this report may be excessive: the gap between a) the current wages of non-elderly workers lacking ESI and b) the per-worker per-hour cost of compliance with the payroll tax plus the prevailing minimum wage may in fact be smaller than the analysis presented here reports.
5) *"Play" standards at least as costly as "paying*." Baicker and Levy's study calls attention to a crucial factor determining the effects of a play-or-pay contribution policy: the standards established for what qualifies as "playing." As the authors note, "A mandate can specify a generous health package … or it can require minimal coverage."[104] The contribution's effects will vary considerably with the costs to employers of fulfillment of the "play" option (and more specifically with the difference between those costs and the costs of "paying"). Given that so few ESI-providing firms pay less than 6% of payroll for them, and that President Obama's campaign proposal (like both "Health Care for America" and the Commonwealth Fund's "Building Blocks") says that "playing" firms must provide insurance at least as good as that available in the Exchange[105], it has been assumed here that employers cannot "play" at a cost below that of "paying."
6) *Twenty hours per week threshold for the policy.* If a play-or-pay employer contribution policy applies only to full-time workers – those working 35 hours or more per week, e.g. – many employers not providing ESI prior to the policy are likely to switch to employing each worker fewer hours per week, to evade the policy. This analysis takes 20 hours per week as the threshold level – below it, the policy is assumed to not apply; above it, the policy is assumed to apply in full. While such a threshold is both useful for the kind of static analysis presented here and often proposed by policy-makers, an employer contribution policy lacking such a "cliff" (a single dividing line, in hours worked, between falling under the contribution policy and not falling under it) would be a more sensible policy design.[106] The payroll tax rate could be made to vary continuously, e.g., with the number of hours worked.

Main analysis

The main findings in this report regarding the static effect on employment to be expected from a play-or-pay employer contribution policy for health care were generated through the following series of steps, using March 2008 CPS microdata from IPUMS:

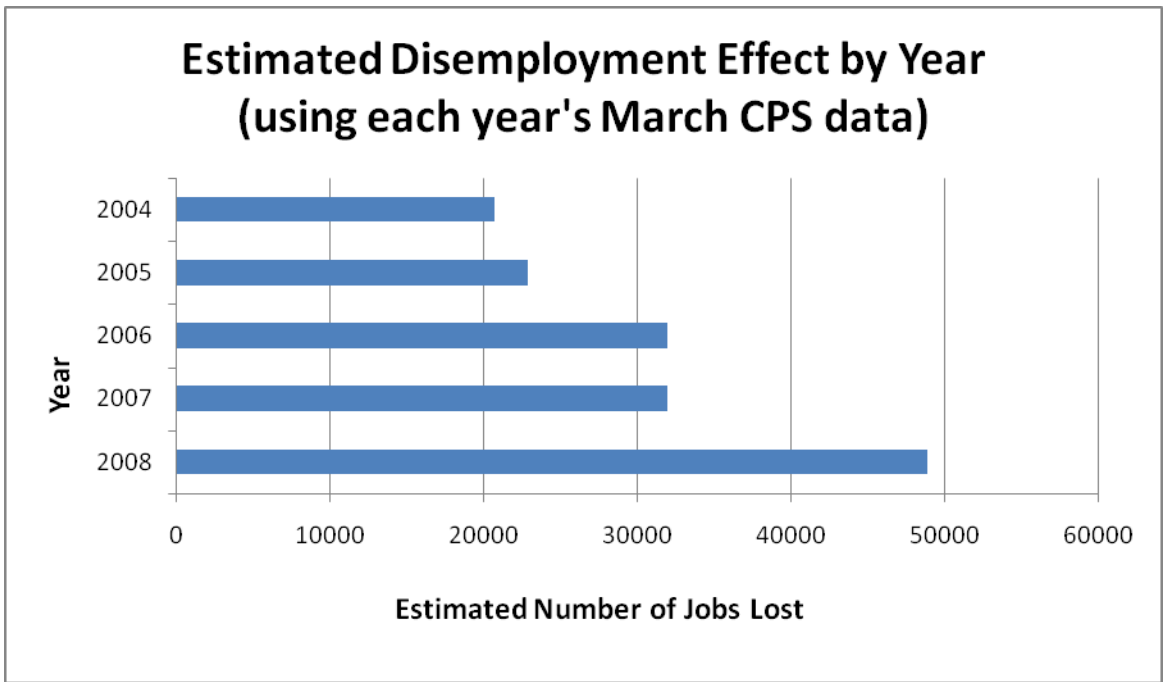
1) Exclude respondents who report typically working fewer than 20 hours per week.
2) Exclude respondents covered by employment-based health insurance, Medicare, a military health plan, or the Indian Health Service.
3) Exclude respondents above the age of 65 and below the age of 21.[107]
4) Calculate typical hourly pay. For workers reporting their pay in hourly terms, use the hourly wages as reported. For workers not reporting their pay in hourly terms, divide their reported usual weekly earnings by their reported usual weekly hours worked to impute their hourly pay.[108]
5) Exclude outliers with implausibly high or low hourly pay[109] – those with hourly pay greater than forty times their state's minimum wage or lower than 0.6 times their state's minimum wage.[110] (Employers of workers with pay far below the prevailing minimum wage before the policy are unlikely to be impeded by the minimum wage in adjusting wages downward.[111])
6) Calculate the amount of payroll tax to be paid per hour for the worker observed, initially using a 6% payroll tax rate. (The cost of compliance with the policy *for an individual worker* is what matters for marginal hiring and firing decisions.)
7) Subtract the amount of payroll tax to be paid per hour from the worker's current hourly pay. If the resulting amount still exceeds the state's prevailing minimum wage[112], exclude the observation. (The employer can adjust wages downward by the full cost of compliance with the policy, without running into the prevailing minimum wage.)
8) For those observations remaining, find the difference between a) their hourly pay minus the payroll tax costs per hour and b) the prevailing minimum wage. Divide that difference by the worker's current hourly pay to find the percentage increase in compensation effectively mandated for that worker.
9) Multiply that percentage by the assumed elasticity of employment to mandated wage increases.
10) Sum the probabilities of job loss for all workers remaining in the set, using the appropriate IPUMS-CPS weight to estimate the national meaning of that summed probability.

Further steps

Since the sample of uninsured near-minimum wage workers in the CPS is small, it would not be justified to draw conclusions about the effect on employment in a particular state or industry from the analysis presented here. Given such sample-size concerns about state-specific analyses, the series of steps just presented was run through treating all workers in the sample as though they faced the same national-average prevailing minimum wage (rather than each facing their own state's minimum wage):

Method	Estimated disemployment	Standard Error
2008, using state minimum wages	48812.54	3720.155
2008, using a federal average minimum wage[113]	45303.43	3246.334

The methodology explained above was also iterated using March CPS data (and prevailing minimum wage levels) for each of the years 2004-2007, to compare the expected effects from an employer contribution policy if it had been implemented in each of those years:



As expected, the disemployment effect increases in 2008, after federal and state minimum wage increases over the course of 2007.

Finally, sensitivity analyses were conducted, varying some of the key assumptions driving the prediction: the elasticity of employment to mandated wage increases, the payroll tax rate, the extent of pass-through to wages, the inclusion of exemptions from the policy for small businesses, and the appropriate hourly-pay thresholds at which to drop outliers from the data-set as implausibly low or high.

ENDNOTES

[1] Obama-Biden campaign. 2008. "Barack Obama and Joe Biden's Plan to Lower Health Care Costs and Ensure Affordable, Accessible Health Coverage to All." 2008. Viewed at http://www.barackobama.com/pdf/issues/HealthCareFullPlan.pdf on January 18, 2009.
[2] Bureau of Labor Statistics. 2009. "Revisions to over-the-month employment changes, seasonally adjusted, 1979-present." U.S. Department of Labor. Viewed at http://www.bls.gov/web/cesnaicsrev.htm on May 12, 2009.
[3] Capretta, James C. 2008. "Obama's Tax on Work." *National Review*, July 10, 2008. Viewed at http://article.nationalreview.com/?q=NWU2OWRkYWM2MTMwZDMxNjgxOTUwYzQzYTE5NGUwOWI= on January 5, 2009.

[4] Summers, Lawrence H. 1989."Some Simple Economics of Mandated Benefits." *The American Economic Review* Vol. 79, No. 2, May 1989, p. 179.
[5] Obama-Biden campaign. 2008. "Barack Obama and Joe Biden's Plan to Lower Health Care Costs and Ensure Affordable, Accessible Health Coverage to All." 2008. Viewed at http://www.barackobama.com/pdf/issues/HealthCareFullPlan.pdf on January 18, 2009.

[6] Baucus, Sen. Max. 2008. "Call to Action: Health Care Reform 2009." November 12, 2008. Viewed at http://finance.senate.gov/healthreform2009/finalwhitepaper.pdf on December 16, 2008.

[7] Hacker, Jacob. 2007a. "Health Care for America." Economic Policy Institute Briefing Paper #180, January 11, 2007. Viewed at http://www.sharedprosperity.org/bp180/bp180.pdf on December 15, 2008.

[8] Schoen, Cathy, Karen Davis, and Sara R. Collins. 2008. "Building Blocks for Reform: Achieving Universal Coverage With Private and Public Group Health Insurance." *Health Affairs* Vol. 27, No. 3, May 2008; pp. 646-657.

[9] The similarities between Hacker's and the Commonwealth Fund's proposals are evident from the prior names each gave their framework for hybrid-system health care reform: "Medicare Plus" and "Medicare Extra," respectively.
[10] Summers, Lawrence H. 1989."Some Simple Economics of Mandated Benefits." *The American Economic Review* Vol. 79, No. 2, May 1989, pp. 177-183.

[11] Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008; Burkhauser, Richard and Kosali Simon. 2007. "Healthcare Reform: The Economics of 'Play or Pay' Employer Mandates." Employment Policies Institute, September 2007. Viewed at http://www.epionline.org/studies/burkhauser_simon_09-2007.pdf on January 20, 2009; Yelowitz, Aaron. 2006. "The 'Fair Share for Health Care Act' and New York's Labor Market." Employment Policies Institute, April 2006. Viewed at http://www.epionline.org/studies/Yelowitz_04-2006.pdf on April 2, 2009. The National Federation of Independent Business (NFIB) also has reported their estimate of the likely job losses, but without explanation of how they arrived at the estimate (National Federation of Independent Business. 2009. "NFIB Fact Sheet: Small Business Impact of a National Employer Healthcare Mandate." January 2009. Viewed at http://www.nfib.com/Portals/0/PDF/AllUsers/NationalMandateFactsheet.pdf on June 8, 2009.)

[12] Kaiser Family Foundation. 2009. "Kaiser Health Tracking Poll: Public Opinion on Health Care Issues." April 2009. Viewed at http://www.kff.org/kaiserpolls/upload/7891.pdf on April 27, 2009.

[13] Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008, p. 5.

[14] Summers, Lawrence H. 1989."Some Simple Economics of Mandated Benefits." *The American Economic Review* Vol. 79, No. 2, May 1989; pp. 177-183.

[15] Baicker, Katherine and Amitabh Chandra. 2008. "Myths and Misconceptions About U.S. Health Insurance." *Health Affairs* Vol. 27, No. 6, October 2008, p. 539.
[16] Gruber, Jonathan and Alan Krueger. 1990. "The Incidence of Mandated Employer-Provided Insurance: Lessons from Workers' Compensation Insurance." National Bureau of Economic Research Working Paper No. 3557, December 1990. Viewed at http://www.nber.org/papers/w3557.pdf on April 10, 2009; Gruber, Jonathan. 1994. "The Incidence of Mandated Maternity Benefits." *American Economic Review,* Vol. 84, No. 3, June 1994, pp. 623-641.

[17] Bernstein, Jared and Elise Gould. 2008. "Comment on 'Employer Health Insurance Mandates and the Risk of Unemployment.'" *Risk Management and Insurance Review* Vol. 11, No. 1, 2008, p. 136; Card, David and Alan Krueger. 1995. Myth and Measurement: The New Economics of the Minimum Wage. Princeton, NJ: Princeton University Press, 1995, p. 313.

[18] The author thanks Jeremy Conley for pointing out this possibility, and for his other very helpful insights into wage-floors and labor markets.
[19] Aaronson, Daniel, Eric French, and James MacDonald. 2005. "The Minimum Wage, Restaurant Prices, and Labor Market Structure." Federal Reserve Bank of Chicago Working Paper No. 2004-21, October 19, 2005. Viewed at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=630515# on April 2, 2009.
[20] Dube, Arindrajit, Suresh Naidu, and Michael Reich. 2007. "The Economic Impacts of a Citywide Minimum Wage." Institute for Research on Labor and Employment, Working Paper iirwps-111-05, 2007. Viewed at http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1109&context=iir on March 8, 2009.

[21] Sinaiko, Anna D. 2004. "Employers' Responses to a Play-or-Pay Mandate: An Analysis of California's Health Insurance Act of 2003." *Health Affairs* web exclusive, October 13, 2004. Viewed at http://content.healthaffairs.org/cgi/content/short/hlthaff.w4.469 on January 20, 2009, p. 473.
[22] Card, David and Alan Krueger. 1995. Myth and Measurement: The New Economics of the Minimum Wage. Princeton, NJ: Princeton University Press, 1995.

[23] Neumark, David and William Wascher. 2006. "Minimum Wages and Employment: A Review of Evidence from the New Minimum Wage Research." National Bureau of Economic Research Working Paper No. W12663, November 2006. Viewed at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=941970 on April 2, 2009.

[24] Brown, Charles. 1999. "Minimum wages, employment, and the distribution of income." In: Ashenfelter, Orley and David Card, Eds. Handbook of Labor Economics, Volume 3B. Chapter 32. Elsevier/North-Holland, 1999; Dube, Arindrajit, T. William Lester, and Michael Reich. 2006. "Minimum Wage Effects Across State Borders: Estimates Using Contiguous Counties." Institute for Research on Labor and Employment, Working Paper iirwps-57-07, August 1, 2007. Viewed at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1005523 on March 8, 2009; Sabia, Joseph. 2009. "Identifying Minimum Wage Effects: New Evidence from Monthly CPS Data." *Industrial Relations: A Journal of Economy and Society* Vol. 28, No. 2, February 2009; pp. 311-328; Card, David and Alan Krueger. 2000. "Minimum Wages and Employment: A Case-Study of the Fast Food Industry in New Jersey and Pennsylvania: A Response." *The American Economic Review* Vol. 90, No. 5, 2000; pp. 1397-1420; Card, David and Alan Krueger. 1995. Myth and Measurement: The New Economics of the Minimum Wage. Princeton, NJ: Princeton University Press, 1995; Allegretto, Sylvia, Arindrajit Dube, and Michael Reich. 2008. "Do Minimum Wages Really Reduce Teen Employment? Accounting for Heterogeneity and Selectivity in State Panel Data." Institute for Research on Labor and Employment, Paper iirwps-166-08, 2009. Viewed at http://www.irle.berkeley.edu/workingpapers/166-08.pdf on May 4, 2009; Neumark, David and William Wascher. 2006. "Minimum Wages and Employment: A Review of Evidence from the New Minimum Wage Research." National Bureau of Economic Research Working Paper No. W12663, November 2006. Viewed at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=941970 on April 2, 2009; Neumark, David and William Wascher. 1995. "The Effects of Minimum Wages on Teenage Employment and Enrollment: Evidence from Matched CPS Surveys." National Bureau of Economic Research Working Paper No.

5092. Viewed at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=225870 on April 28, 2009; Burkhauser, Richard and Joseph Sabia. 2007. "The Effectiveness of Minimum-Wage Increases in Reducing Poverty: Past, Present and Future." *Contemporary Economic Policy* Vol. 25, No. 2, April 2007; pp. 262-281; Pollin, Robert. 2005. "Evaluating living wage laws in the United States: Good intentions and economic reality in conflict?" *Economic Development Quarterly* Vol. 19, No. 3, March 2005; pp. 2-24.

[25] Dube, Arindrajit, T. William Lester, and Michael Reich. 2006. "Minimum Wage Effects Across State Borders: Estimates Using Contiguous Counties." Institute for Research on Labor and Employment, Working Paper iirwps-57-07, August 1, 2007. Viewed at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1005523 on March 8, 2009.
[26] Fairris, David and Michael Reich. 2005. "The Impacts of Living Wage Policies: Introduction to the Special Issue." *Industrial Relations* Vol. 44, No. 1, January 2005, p. 9.
[27] Card, David and Alan Krueger. 1995. Myth and Measurement: The New Economics of the Minimum Wage. Princeton, NJ: Princeton University Press, 1995, p. 369.

[28] Card and Krueger made the point quite incisively: "An increase in the minimum wage leads to a situation in which workers who previously were paid different wages all receive the new minimum wage. This finding is difficult to reconcile with the view that each workers was paid exactly what he or she was worth." (Card, David and Alan Krueger. 1995. Myth and Measurement: The New Economics of the Minimum Wage. Princeton, NJ: Princeton University Press, 1995, p. 3)
[29] Manning, Alan. 2003. Monopsony in Motion: Imperfect Competition in Labor Markets. Princeton, NJ: Princeton University Press, 2003.

[30] Card, David and Alan Krueger. 1995. Myth and Measurement: The New Economics of the Minimum Wage. Princeton, NJ: Princeton University Press, 1995; Manning, Alan. 2003. Monopsony in Motion: Imperfect Competition in Labor Markets. Princeton, NJ: Princeton University Press, 2003.

[31] Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008.

[32] Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008; p. 5.

[33] Baicker and Levy model the cost to employers of compliance with the contribution as 80% of the premium cost for each worker. (Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008.)
[34] Burkhauser and Simon use a state-level policy proposal in New York to model the possible effects of a national-level play-or-pay contribution. (Burkhauser, Richard and Kosali Simon. 2007. "Healthcare Reform: The Economics of 'Play or Pay' Employer Mandates." Employment Policies Institute, September 2007. Viewed at http://www.epionline.org/studies/burkhauser_simon_09-2007.pdf on January 20, 2009.)

[35] This is the effective tax rate faced by employers of minimum-wage workers (those most susceptible to job loss), based on Burkhauser and Simon's use of a $3 per worker per hour flat tax as the cost of compliance with the contribution. (Blumberg, Linda. 2008. "Comment on 'Who Gets What From Employer Pay or Play Mandates?'" *Risk Management and Insurance Review* Vol. 11, No. 1, 2008; p. 105).
[36] Yelowitz evaluates the same New York proposal used by Burkhauser and Simon, but he does not seek to draw conclusions about national-level play-or-pay contribution policies from his analysis. (Yelowitz, Aaron. 2006. "The 'Fair Share for Health Care Act' and New York's Labor Market." Employment Policies Institute, April 2006. Viewed at http://www.epionline.org/studies/Yelowitz_04-2006.pdf on April 2, 2009.)

[37] See, e.g.: Lewin Group. 2009. "The Cost and Coverage Impacts of a Public Plan: Alternative Design Options." Staff Working Paper #4. April 8, 2009. Viewed at

http://www.lewin.com/content/publications/LewinCostandCoverageImpactsofPublicPlan-Alternative%20DesignOptions.pdf on April 18, 2009; Davis, Karen. 2008. "Public Programs: Critical Building Blocks in Health Reform." Testimony before the Senate Finance Committee. June 16, 2008. Viewed at http://finance.senate.gov/healthsummit2008/Statements/Karen%20Davis%20Testimony.pdf on January 18, 2009; Lewin Group. 2008. "Cost Impact Analysis for the 'Health Care for America' Proposal." February 15, 2008. Viewed at http://www.sharedprosperity.org/hcfa/lewin.pdf on December 15, 2008; Hacker, Jacob. 2007a. "Health Care for America." Economic Policy Institute Briefing Paper #180, January 11, 2007. Viewed at http://www.sharedprosperity.org/bp180/bp180.pdf on December 15, 2008; Lewin Group. 2003. "Cost and Coverage Analysis of Ten Proposals To Expand Health Insurance Coverage." October 2003. Viewed at http://www.rwjf.org/files/research/coveringamerica.pdf on April 18, 2009; Hacker, Jacob. 2001. "Medicare Plus: Increasing Health Coverage by Expanding Medicare." In: Economic and Social Research Institute, Covering America, Volume I. Viewed at http://www.esresearch.org/RWJ11PDF/hacker.pdf on February 12, 2009.

[38] The National Federation of Independent Business (NFIB) argues that a) mandates for employers to provide insurance to their workers, b) requirements that employers pay a certain percentage of payroll on health insurance, and c) play-or-pay policies "are essentially the same in their effects on employers and employees." In their estimation, this equivalence "allow[s] discussion of only the first as representative of three." As we have seen, percentage-of-premium requirements could cost affected employers five to ten times as much as play-or-pay policies; their effects are perhaps the same, then, in every sense other than their magnitude (which, it turns out, is the only characteristic in question). (National Federation of Independent Business. 2009. "The Case Against Mandated Employer-Provided Employee Health Insurance." 2009. Viewed at http://www.nfib.com/Portals/0/PDF/AllUsers/MandatedHealthBenefits.pdf on June 8, 2009; National Federation of Independent Business. 2009. "NFIB Fact Sheet: Small Business Impact of a National Employer Healthcare Mandate." January 2009. Viewed at http://www.nfib.com/Portals/0/PDF/AllUsers/NationalMandateFactsheet.pdf on June 8, 2009.)

[39] See the full methodology section in the appendix for discussion of the group of potentially "at risk" workers not included in this analysis: those working for employers who provide ESI but at a cost below the minimum costs of compliance with the new play-or-pay mandate.

[40] Bureau of Labor Statistics. 2008a. "The Employment Situation: March 2008." U.S. Department of Labor. Viewed at http://www.bls.gov/news.release/archives/empsit_04042008.pdf on May 2, 2009.

[41] Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008, p. 15.

[42] Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008, p. 15.

[43] Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008, p. 13.

[44] The one significant difference between the two is that Baicker and Levy did not report any respondents with hourly wages below the prevailing minimum wage, whereas this policy brief finds more than 6% of uninsured workers falling in this category.

[45] Jacobs, Ken, Lucas Ronconi, and Dave Graham-Squire. 2007. "Health Coverage Proposals in California: Impact on Businesses." UC-Berkeley Labor Center Research Brief, July 11, 2007, p. 13.

[46] Card, David and Alan Krueger. 1995. Myth and Measurement: The New Economics of the Minimum Wage. Princeton, NJ: Princeton University Press, 1995.

[47] See, e.g.: Brown, Charles. 1999. "Minimum wages, employment, and the distribution of income." In: Ashenfelter, Orley and David Card, Eds. Handbook of Labor Economics, Volume 3B. Chapter 32. Elsevier/North-Holland, 1999;

Neumark, David and William Wascher. 2006. "Minimum Wages and Employment: A Review of Evidence from the New Minimum Wage Research." National Bureau of Economic Research Working Paper No. W12663, November 2006. Viewed at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=941970 on April 2, 2009.

[49] Lewin Group. 2003. "Cost and Coverage Analysis of Ten Proposals To Expand Health Insurance Coverage." October 2003. Viewed at http://www.rwjf.org/files/research/coveringamerica.pdf on April 18, 2009; Hacker, Jacob. 2007a. "Health Care for America." Economic Policy Institute Briefing Paper #180, January 11, 2007. Viewed at http://www.sharedprosperity.org/bp180/bp180.pdf on December 15, 2008; Schoen, Cathy, Karen Davis, and Sara R. Collins. 2008. "Building Blocks for Reform: Achieving Universal Coverage With Private and Public Group Health Insurance." *Health Affairs* Vol. 27, No. 3, May 2008, pp. 646-657; Davis, Karen. 2008. "Public Programs: Critical Building Blocks in Health Reform." Testimony before the Senate Finance Committee. June 16, 2008. Viewed at http://finance.senate.gov/healthsummit2008/Statements/Karen%20Davis%20Testimony.pdf on January 18, 2009; 2008b. "Slowing the Growth of Health Care Costs – Learning from International Experience." *New England Journal of Medicine* Vol. 359, No. 17, October 2008,pp. 1751-1755; 2001. "Medicare Plus: Increasing Health Coverage by Expanding Medicare." In: Economic and Social Research Institute, Covering America, Volume I. Viewed at http://www.esresearch.org/RWJ11PDF/hacker.pdf on February 12, 2009.

[50] As Theda Skocpol notes, in an influential post-mortem on the Clinton health care reform efforts: "Employers with higher-paid workers, the Chamber of Commerce, and moderates in Congress from both parties, all strongly preferred the percentage-of-premium approach. That is what the Clinton administration fundamentally chose to do – even though this was a much less straightforward way to proceed than percentage-of-payroll payments would have been. … the detailed regulations required to put into effect the premium approach added hundreds of pages to the fully spelled out Health Security bill." Today's reformers appear to prefer a simple, easy-to-understand, and lower level of required employer contribution. (Skocpol, Theda. 1996. Boomerang: Health Care Reform and the Turn Against Government. New York: W.W. Norton & Company, 1996.)

[51] Card, David and Alan Krueger. 1995. Myth and Measurement: The New Economics of the Minimum Wage. Princeton, NJ: Princeton University Press, 1995, p. 313; Bernstein, Jared and Elise Gould. 2008. "Comment on 'Employer Health Insurance Contributions and the Risk of Unemployment.'" *Risk Management and Insurance Review* Vol. 11, No. 1, 2008; p. 136.

[52] Sinaiko, Anna D. 2004. "Employers' Responses to a Play-or-Pay Mandate: An Analysis of California's Health Insurance Act of 2003." *Health Affairs* web exclusive, October 13, 2004. Viewed at http://content.healthaffairs.org/cgi/content/short/hlthaff.w4.469 on January 20, 2009; Dube, Arindrajit, Suresh Naidu, and Michael Reich. 2007. "The Economic Impacts of a Citywide Minimum Wage." Institute for Research on Labor and Employment, Working Paper iirwps-111-05, 2007. Viewed at http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1109&context=iir on March 8, 2009, p.2.

[53] Mishel, Lawrence, Jared Bernstein and Heidi Shierholz. 2009. The State of Working America 2008/2009. Ithaca, NY: Cornell University Press, 2009, p. 395.

[54] Aaronson, Daniel, Sumit Agarwal, and Eric French. 2008. "The Spending and Debt Response to Minimum Wage Hikes." Federal Reserve Board of Chicago Working Paper No. 2007-23, revised December 29, 2008. Viewed at http://www.chicagofed.org/publications/workingpapers/wp2007_23.pdf on May 4, 2009.

[55] Obama-Biden campaign. 2008. "Barack Obama and Joe Biden's Plan to Lower Health Care Costs and Ensure Affordable, Accessible Health Coverage to All." 2008. Viewed at http://www.barackobama.com/pdf/issues/HealthCareFullPlan.pdf on January 18, 2009.

[56] Gould, Elise. 2009. "Health Reform in the 21st Century: Employer Sponsored Insurance." Testimony before the House Committee on Ways and Means, April 29, 2009. Viewed at http://www.epi.org/page/-/pdf/20090429_gould_testimony.pdf on May 4, 2009, p. 4.

[57] Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008. p. 3.

[58] Gruber, Jonathan. 2008b. "Medicine for the Job Market." *New York Times*, December 4, 2008.

[59] Eisenbrey, Ross. 2007. "Health insurance industry employment outpacing providers and all-industry growth rate." Economic Policy Institute, September 19, 2007. Viewed at http://www.epi.org/economic_snapshots/entry/webfeatures_snapshots_20070919/ on April 28, 2009.

[60] Lewin Group. 2008. "Cost Impact Analysis for the 'Health Care for America' Proposal." February 15, 2008. Viewed at http://www.sharedprosperity.org/hcfa/lewin.pdf on December 15, 2008; Lewin Group. 2009. "The Cost and Coverage Impacts of a Public Plan: Alternative Design Options." Staff Working Paper #4. April 8, 2009. Viewed at http://www.lewin.com/content/publications/LewinCostandCoverageImpactsofPublicPlan-Alternative%20DesignOptions.pdf on April 18, 2009.

[61] Congressional Budget Office. "Key Issues in Analyzing Major Health Insurance Proposals." December 2008. Viewed at http://www.cbo.gov/ftpdocs/99xx/doc9924/12-18-KeyIssues.pdf on February 10, 2009, p. xv.

[62] O'Brien, Ellen. 2003. "Employers' Benefits from Workers' Health Insurance." *Milbank Quarterly* Vol. 81, No. 1, 2003, pp. 14-15. On poor health's effect on worker productivity, see also: Jacobs, Ken, Lucas Ronconi, and Dave Graham-Squire. 2007. "Health Coverage Proposals in California: Impact on Businesses." UC-Berkeley Labor Center Research Brief, July 11, 2007.

[63] Baicker, Katherine and Ambitabh Chandra. 2008. "Myths and Misconceptions About U.S. Health Insurance." *Health Affairs* Vol. 27, No. 6, October 2008, p. 537. On security and "financial smoothing" benefits from health insurance, see also: Finkelstein, Amy and Robin McKnight. 2008. "What Did Medicare Do? (And Was it Worth it?)" National Bureau of Economic Research Working Paper 11609, September 2005. Viewed at http://www.nber.org/papers/w11609.pdf on April 28, 2009.

[64] In a perfectly competitive labor market, employees would more or less instantaneously, costlessly move from one job to another when better pay or job characteristics are offered, and would have complete information on the characteristics and pay of all available jobs in which they might be interested. A situation of job lock based on the fear of losing health insurance departs quite dramatically from such assumptions. As with subtler forms of transaction costs and imperfections in labor markets, any movement towards reduced information-gathering costs and greater worker mobility in response to real differences in job characteristics and wages should boost a labor market's efficiency.

[65] Gruber, Jonathan and Brigitte C. Madrian. 2002. "Health Insurance, Labor Supply, and Job Mobility: A Critical Review of the Literature." National Bureau of Economic Research Working Paper 8817, March 2002, pp. 1, 28. Also, as Madrian notes in a later publication, "among individuals who have employer-provided health insurance, those who also have coverage through the employment of a spouse are much more likely to change jobs than those that do not." (Madrian, Brigitte. 2006. "The U.S. Health Care System and Labor Markets." National Bureau of Economic Research Working Paper 11980, January 2006. Viewed at http://ideas.repec.org/p/nbr/nberwo/11980.html on May 5, 2009, p. 18.)

[66] Kaiser Family Foundation. 2008. "Employer Health Insurance Costs and Worker Compensation." March 2008. Viewed at http://www.kff.org/insurance/snapshot/chcm030808oth.cfm on January 20, 2009.

[67] Zedlewski, Sheila R., Gregory P. Acs, and Colin W. Winterbottom. 1992. "Play-or-Pay Employer Mandates: Potential Effects." *Health Affairs* Vol. 11, No. 1, 1992, p. 64.

[68] DeLong, Bradford J. 2008. "Likely Employment Impacts of Obama Health Care Reform Plan." August 14, 2008. Viewed at http://www.leighbureau.com/speakers/bdelong/essays/obama_healthcare.pdf on January 20, 2009, p. 3.

[69] Cutler, David, J. Bradford DeLong, and Ann Marie Marciarille. 2008. "Why Obama's Health Plan Is Better." *Wall Street Journal*, September 16, 2008.

[70] Commonwealth Fund Commission on a High Performance Health System. 2009. "The Path to a High Performance U.S. Health System: A 2020 Vision and the Policies to Pave the Way." Commonwealth Fund, February 2009. Viewed at http://www.commonwealthfund.org/Content/Publications/Fund-Reports/2009/Feb/The-Path-to-a-High-Performance-US-Health-System.aspx on April 2, 2009; Davis, Karen. 2008b. "Slowing the Growth of Health Care Costs – Learning from International Experience." *New England Journal of Medicine* Vol. 359, No. 17, October 2008; pp. 1751-1755.

[71] Robinson, James C. 2004. "Consolidation And The Transformation of Competition In Health Insurance." *Health Affairs* Vol. 23, No. 6, November 2004, pp. 11-24; American Medical Association. 2007. "Competition in health insurance: A comprehensive study of U.S. markets." 2007. Viewed at http://www.ama-assn.org/ama1/pub/upload/mm/368/compstudy_52006.pdf on March 10, 2009; *Boston Globe*. 2008b. "A handshake that made healthcare history." December 28, 2008.

[72] Lewin Group. 2009. "The Cost and Coverage Impacts of a Public Plan: Alternative Design Options." Staff Working Paper #4. April 8, 2009. Viewed at http://www.lewin.com/content/publications/LewinCostandCoverageImpactsofPublicPlan-Alternative%20DesignOptions.pdf on April 18, 2009, p. 4.

[73] Commonwealth Fund Commission on a High Performance Health System. 2009. "The Path to a High Performance U.S. Health System: A 2020 Vision and the Policies to Pave the Way." Commonwealth Fund, February 2009. Viewed at http://www.commonwealthfund.org/Content/Publications/Fund-Reports/2009/Feb/The-Path-to-a-High-Performance-US-Health-System.aspx on April 2, 2009.

[74] The average revision the BLS made to each month's employment estimate, two months later, in 2008 was +/- 73,000. (Bureau of Labor Statistics. 2009. "Revisions to over-the-month employment changes, seasonally adjusted, 1979-present." U.S. Department of Labor. Viewed at http://www.bls.gov/web/cesnaicsrev.htm on May 12, 2009.)

[75] Bureau of Labor Statistics. 2009b. "Employment Situation Summary." U.S. Department of Labor. Viewed at http://www.bls.gov/news.release/empsit.nr0.htm on May 5, 2009.

[76] Aaron, Henry. 2009. "The Pitfalls of Overreaching in Health Reform." *Health Affairs* Vol. 28, No. 2.

[77] Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008.

[78] Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008; p. 5.

[79] Baicker and Levy model the cost to employers of compliance with the contribution as 80% of the premium cost for each worker. (Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008.)

[80] Burkhauser and Simon use a state-level policy proposal in New York to model the possible effects of a national-level play-or-pay contribution. (Burkhauser, Richard and Kosali Simon. 2007. "Healthcare Reform: The Economics of 'Play or Pay' Employer Mandates." Employment Policies Institute, September 2007. Viewed at http://www.epionline.org/studies/burkhauser_simon_09-2007.pdf on January 20, 2009.)

[81] This is the effective tax rate faced by employers of minimum-wage workers (those most susceptible to job loss), based on Burkhauser and Simon's use of a $3 per worker per hour flat tax as the cost of compliance with the contribution. (Blumberg, Linda. 2008. "Comment on 'Who Gets What From Employer Pay or Play Mandates?'" *Risk Management and Insurance Review* Vol. 11, No. 1, 2008; p. 105).

[82] Yelowitz evaluates the same New York proposal used by Burkhauser and Simon, but he does not seek to draw conclusions about national-level play-or-pay contribution policies from his analysis. (Yelowitz, Aaron. 2006. "The 'Fair Share for Health Care Act' and New York's Labor Market." Employment Policies Institute, April 2006. Viewed at http://www.epionline.org/studies/Yelowitz_04-2006.pdf on April 2, 2009.)

[83] See, e.g.: Lewin Group. 2009. "The Cost and Coverage Impacts of a Public Plan: Alternative Design Options." Staff Working Paper #4. April 8, 2009. Viewed at http://www.lewin.com/content/publications/LewinCostandCoverageImpactsofPublicPlan-Alternative%20DesignOptions.pdf on April 18, 2009; Davis, Karen. 2008. "Public Programs: Critical Building Blocks in Health Reform." Testimony before the Senate Finance Committee. June 16, 2008. Viewed at http://finance.senate.gov/healthsummit2008/Statements/Karen%20Davis%20Testimony.pdf on January 18, 2009; Lewin Group. 2008. "Cost Impact Analysis for the 'Health Care for America' Proposal." February 15, 2008. Viewed at http://www.sharedprosperity.org/hcfa/lewin.pdf on December 15, 2008; Hacker, Jacob. 2007a. "Health Care for America." Economic Policy Institute Briefing Paper #180, January 11, 2007. Viewed at http://www.sharedprosperity.org/bp180/bp180.pdf on December 15, 2008; Lewin Group. 2003. "Cost and Coverage Analysis of Ten Proposals To Expand Health Insurance Coverage." October 2003. Viewed at http://www.rwjf.org/files/research/coveringamerica.pdf on April 18, 2009; Hacker, Jacob. 2001. "Medicare Plus: Increasing Health Coverage by Expanding Medicare." In: Economic and Social Research Institute, Covering America, Volume I. Viewed at http://www.esresearch.org/RWJ11PDF/hacker.pdf on February 12, 2009.

[84] A recent Congressional Budget Office (CBO) report provides a useful summary of this analytic challenge: "Although economic theory and experience provide some guidance about the effects of specific provisions, large-scale proposals to restructure the health insurance system may contain numerous pieces that could interact – affecting labor supply, the capital stock, and productivity in complex and possibly offsetting ways." (Congressional Budget Office. 2008. "Key Issues in Analyzing Major Health Insurance Proposals." December 2008. Viewed at http://www.cbo.gov/ftpdocs/99xx/doc9924/12-18-KeyIssues.pdf on February 10, 2009, p. 162.)

[85] Aaron, Henry. 2009. "The Pitfalls of Overreaching in Health Reform." *Health Affairs* Vol. 28, No. 2, pp. 184-187.

[86] "The public plan" included in several major health care reform proposals "is difficult to evaluate," acknowledges the Lewin Group – a consulting firm that provides the most credible micro-simulation analyses of the effects of multi-component health care reform proposals – because of the lack of specifics on the public plan's design at this stage of the policy-making discussion. (Lewin Group. 2009. "The Cost and Coverage Impacts of a Public Plan: Alternative Design Options." Staff Working Paper #4. April 8, 2009. Viewed at http://www.lewin.com/content/publications/LewinCostandCoverageImpactsofPublicPlan-Alternative%20DesignOptions.pdf on April 18, 2009, p. 1.) The public plan is far from the only key policy component of proposed health care reforms packages subject to uncertainty, disagreement, and negotiation. Others include: a) whether a public plan would be allowed to use its bargaining power (as Medicare does); b) whether to prohibit some employers (very large ones, e.g.) from enrolling their workers in the public plan, requiring them instead to "play"; c) whether to offer exemptions from the contribution, or a sliding scale of "pay" rates, for small businesses (and if so, the definition of "small businesses"); d) how to structure the insurance exchange; e) whether and to what extent to expand Medicaid eligibility, SCHIP, tax credits, or any other subsidies for low-income individuals and families; f) whether to replace such programs with public plan coverage combined with a sliding-scale premium structure that includes subsidies for low-income individuals and families; g) whether to give people age 55 or older the option of buying into Medicare directly; h) whether to make 20 hours of work per week, or some other number, the threshold for whether an employer must "play or pay" for their employee's health insurance (or whether to have the payroll tax rate vary with the number of hours worked); i) what the payroll tax rate for "paying" employers will be; j) whether the payroll tax rate for "paying" employers will change over time, and if so how; k) how the additional federal revenues required for the policy reform get raised (the incidence of the other revenue sources); l) whether to alter the tax-exemption for employer spending on health insurance, and if so how; m) what minimum level of health insurance coverage (in terms of quality, cost, or a combination of the two) is required for an employer to qualify as "playing"; n) the extent and nature of regulatory

reform of the insurance market, including guaranteed-issue policies and community-rating policies; and o) what cost-control measures – among at least a dozen under serious discussion among policymakers – are adopted as part of the health care reform. This is not intended as a comprehensive list of key policy components within a health care reform package, but simply as an indication of the great number of consequential components under discussion and (as a result) a suggestion of the analytic challenges in predicting the effects on employment from a comprehensive health care reform proposal.

[87] Kaiser Family Foundation. 2008. "Employer Health Insurance Costs and Worker Compensation." March 2008. Viewed at http://www.kff.org/insurance/snapshot/chcm030808oth.cfm on January 20, 2009.

[88] As Baicker and Levy point out, one important limitation in this approach is that it treats workers who were offered ESI but declined it as within the universe of non-elderly workers lacking ESI. (Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008, p. 8.)

[89] Kaiser Family Foundation. 2008. "Employer Health Insurance Costs and Worker Compensation." March 2008. Viewed at http://www.kff.org/insurance/snapshot/chcm030808oth.cfm on January 20, 2009.

[90] Kaiser Family Foundation. 2008. "Employer Health Insurance Costs and Worker Compensation." March 2008. Viewed at http://www.kff.org/insurance/snapshot/chcm030808oth.cfm on January 20, 2009; Sommers, John and Richard Keach. 2005. "Employer-Sponsored Health Insurance Costs, Offer Rates, and Take-Up Rates for Small Employers in the Private Sector, by Industry Classification, 2000 and 2003." Medical Expenditure Panel Survey (MEPS) and Agency for Healthcare Research and Quality (AHRQ) Statistical Brief No. 98, September 2005. Viewed at http://www.meps.ahrq.gov/mepsweb/data_files/publications/st98/stat98.pdf on April 20, 2009.

[91] Kaiser Family Foundation. 2008. "Employer Health Insurance Costs and Worker Compensation." March 2008. Viewed at http://www.kff.org/insurance/snapshot/chcm030808oth.cfm on January 20, 2009.

[92] Specifically, the data used in this analysis was taken from the University of Minnesota's Integrated Public Use Microdata Series (IPUMS) for the CPS. (King, Miriam, Steven Ruggles, Trent Alexander, Donna Leicach, and Matthew Sobek. 2004. "Integrated Public Use Microdata Series, Current Population Survey: Version 2.0." Machine-readable database. Minneapolis, MN: Minnesota Population Center, 2004. Available at http://cps.ipums.org/cps.)

[93] For the March 2008 CPS, survey-takers contacted 58,900 households, and conducted interviews with 53,800 of them. (U.S. Census Bureau, 2008b. "Sources of the Data and Accuracy of the Estimates for *Income, Poverty, and Health Insurance Coverage in the United States: 2007*." Viewed at http://www.census.gov/hhes/www/p60_235sa.pdf on April 2, 2009, p.1.)

[94] U.S. Census Bureau. 2008a. "Incomes, Poverty, and Health Insurance Coverage in the United States: 2007." Viewed at http://www.census.gov/prod/2008pubs/p60-235.pdf on April 2, 2009, p. 19.

[95] Swartz, Katherine. 1986. "Interpreting the Estimates from Four National Surveys of the Number of People without Health Insurance." *Journal of Economic and Social Measurement*, Vol. 14, No. 3, 1986, pp. 233-242.

[96] U.S. Census Bureau. 2008a. "Incomes, Poverty, and Health Insurance Coverage in the United States: 2007." Viewed at http://www.census.gov/prod/2008pubs/p60-235.pdf on April 2, 2009; Congressional Budget Office. 2003. "How Many People Lack Health Insurance and for How Long?" May 2003. Viewed at http://www.cbo.gov/ftpdocs/42xx/doc4210/05-12-Uninsured.pdf on April 28, 2009.

[97] Neumark, David and William Wascher. 2006. "Minimum Wages and Employment: A Review of Evidence from the New Minimum Wage Research." National Bureau of Economic Research Working Paper No. W12663, November 2006. Viewed at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=941970 on April 2, 2009, pp. 13-14.

[98] Card, David and Alan Krueger. 1995. Myth and Measurement: The New Economics of the Minimum Wage. Princeton, NJ: Princeton University Press, 1995, p. 313; Bernstein, Jared and Elise Gould. 2008. "Comment on 'Employer Health Insurance Contributions and the Risk of Unemployment.'" *Risk Management and Insurance Review* Vol. 11, No. 1, 2008; p. 136.

[99] Sinaiko, Anna D. 2004. "Employers' Responses to a Play-or-Pay Mandate: An Analysis of California's Health Insurance Act of 2003." *Health Affairs* web exclusive, October 13, 2004. Viewed at http://content.healthaffairs.org/cgi/content/short/hlthaff.w4.469 on January 20, 2009; Dube, Arindrajit, Suresh Naidu, and Michael Reich. 2007. "The Economic Impacts of a Citywide Minimum Wage." Institute for Research on Labor and Employment, Working Paper iirwps-111-05, 2007. Viewed at http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1109&context=iir on March 8, 2009, p.2.

[100] Obama-Biden campaign. 2008. "Barack Obama and Joe Biden's Plan to Lower Health Care Costs and Ensure Affordable, Accessible Health Coverage to All." 2008. Viewed at http://www.barackobama.com/pdf/issues/HealthCareFullPlan.pdf on January 18, 2009.

[101] Schwabish, Jonathan A. "Accounting for Wages and Benefits Using the ECI." 2004. *Monthly Labor Review*, September 2004, p. 39; Simon, Kosali I. 2001. "Displaced Workers and Employer-Provided Health Insurance: Evidence of a Wage/Fringe Benefit Tradeoff?" *International Journal of Health Care Finance and Economics* Vol. 1, No. 3/4, 2001, p. 249.

[102] Madrian, Brigitte. 2006. "The U.S. Health Care System and Labor Markets." National Bureau of Economic Research Working Paper 11980, January 2006. Viewed at http://ideas.repec.org/p/nbr/nberwo/11980.html on May 5, 2009, p. 24.

[103] Haugen, Steven and Earl Mellor. 1990. "Estimating the Number of Minimum Wage Workers." *Monthly Labor Review* Vol. 113, January 1990, p. 71.

[104] Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008, pp. 3-4.

[105] Obama-Biden campaign. 2008. "Barack Obama and Joe Biden's Plan to Lower Health Care Costs and Ensure Affordable, Accessible Health Coverage to All." 2008. Viewed at http://www.barackobama.com/pdf/issues/HealthCareFullPlan.pdf on January 18, 2009.

[106] A 2005 study finds higher rates of fewer-than-20-hours-per-week employment in Hawaii than in other U.S. states, probably a result of the inclusion in Hawaii's play-or-pay policy for health care of a 20-hours-per-week cutoff for whether an employer must comply. (Lee, Sang-Hyop, Gerard Russo, Lawrence Nitz, and Abdul Jabbar. 2005. "The Effect of Mandatory Employer-Sponsored Insurance (ESI) on Health Insurance Coverage and Labor Force Utilization in Hawaii: Evidence from the Current Population Survey (CPS) 1994-2004." Draft. Viewed at http://www.soc.hawaii.edu/HI_coverage/working_paper/paper8.pdf on April 2, 2009.)

[107] Baicker and Levy used the age range 22-65, instead of 21-65.

[108] As the Bureau of Labor Statistics explains, in Outgoing Rotation Group interviews respondents are "asked to identify the easiest way for them to report earnings (hourly, weekly, biweekly, twice monthly, monthly, annually, other) and how much they usually earn in the reported time period. Earnings reported on a basis other than weekly are converted to a weekly equivalent." CPS earnings data "represent earnings before taxes and other deductions and include any overtime pay, commissions, or tips usually received (at the main job in the case of multiple jobholders)." Reported earnings exclude self-employment income. (Bureau of Labor Statistics. 2009. "Usual Weekly Earnings Explanatory Note." U.S. Department of Labor. Viewed at http://data.bls.gov/cgi-bin/print.pl/news.release.wkyeng.tn.htm on April 21, 2009.)

[109] There are several exemptions from the Fair Labor Standards Act, so some workers have earnings below the prevailing minimum wage without there being any violation of the law. Other workers with hourly pay below the

prevailing minimum wage may work long hours for a small salary or may be paid "under the table." It is not possible, however, to identify and exclude such workers from an analysis using CPS data. (Haugen, Steven and Earl Mellor. 1990. "Estimating the Number of Minimum Wage Workers." *Monthly Labor Review* Vol. 113, January 1990, p. 70)

[110] Aaronson, Daniel, Sumit Agarwal, and Eric French. 2008. "The Spending and Debt Response to Minimum Wage Hikes." Federal Reserve Board of Chicago Working Paper No. 2007-23, revised December 29, 2008. Viewed at http://www.chicagofed.org/publications/workingpapers/wp2007_23.pdf on May 4, 2009, p. 14.

[111] Burkhauser, Richard and Kosali Simon. 2007. "Healthcare Reform: The Economics of 'Play or Pay' Employer Mandates." Employment Policies Institute, September 2007. Viewed at http://www.epionline.org/studies/burkhauser_simon_09-2007.pdf on January 20, 2009, p. 83.

[112] That is, the prevailing minimum wage in the state in January 2008. According to Baicker and Levy, January "corresponds best with the period from which respondents in the CPS report their wages" (Baicker, Katherine and Helen Levy. 2007. "Employer Health Insurance Mandates and the Risk of Unemployment." National Bureau of Economic Research Working Paper 13528, October 2007. Viewed at http://www.nber.org/papers/w13528 on December 18, 2008, p. 7)

[113] $6.76, calculated using the March 2008 CPS data-set matched to state minimum wage levels.