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Mandated Employment-Based Health Insurance: Incidence and Efficiency Effects

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INCIDENCE AND EFFICIENCY EFFECTS**

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**MANDATED EMPLOYMENT-BASED HEALTH INSURANCE:
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Abstract

There is growing concern over the rising number of people without health insurance -- from 13 percent of the non-elderly population in 1977 to over 17 percent in 1985. Mandatory employment-based (MEB) coverage for all workers is prominent among the options for covering the uninsured currently being considered by state and federal governments, and has recently been enacted in Massachusetts.

This paper analyses the incidence and efficiency effects of MEB. A model of the voluntary market for employment-based health insurance is developed, extending the classic model of non-cash job attributes to allow for within-firm heterogeneity of workers, demand for coverage of dependents and adverse selection. Empirical evidence from the Survey of Income and Program Participation is used to test some of the predictions of the model.

The analysis of MEB treats the mandated benefits as a lumpsum cost per worker, rather than a proportional payroll tax. The implicit tax rate varies inversely with hours, wage rate, firm size and risk preferences of workers. The tax is also selective rather than universal, applying only to newly covered workers. General equilibrium analysis implies that wages of newly covered workers may fall by more or less than the cost of coverage. Other significant effects include: permanent disemployment effects, particularly for part-time workers; redistribution from immobile factors in small to large firms; and gains to previously insured workers.

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Introduction

There is growing political concern over the rising number of people without health insurance -- from 13% of the under-65 population in 1977 to 17% in 1987, or over 35 million people. Mandatory employment-based (MEB) coverage is prominent among the options currently being considered by state and federal governments for covering the uninsured, and has recently been enacted in Massachusetts. Since over two thirds of the uninsured are either themselves employed or are in families with an employed member,¹ a comprehensive mandate for employment-based coverage could in principle cover a substantial fraction of the uninsured, assuming no change in employment patterns. The share of total costs borne by public budgets is relatively low under MEB, compared to most other options under consideration. Moreover these public budget costs are hidden in the form of tax expenditures, rather than requiring explicit appropriations. For example, mandating coverage of all full-time employed workers and their dependents would cover 51% of the currently uninsured, for a net new public cost of \$0.8 billion. By contrast, a program that extends either Medicaid or catastrophic coverage to all the uninsured below 150 percent of poverty would cover 53% of the uninsured for a similar total cost but the cost to public budgets would be \$7.8 billion (see Section III below).

Previous analyses of MEB (for example, Mitchell and Phelps, 1975) conclude that there may be transitory unemployment if wages are sticky in the short-run, but in the long-run wages of newly covered workers would simply fall by the cost of coverage, except where constrained by minimum wage laws. These conclusions follow from viewing MEB like a universal payroll tax.

¹EBRI (1987), based on March 1986 Current Population Survey. Of the uninsured, 69 percent lived in families of full-time, full year workers (worked at least 35 hours in a typical week and worked or sought work at least 35 weeks). Of these, 52 percent were full time and steadily employed throughout 1985; 17 percent were full-time but experienced at least one week of unemployment during the year. An additional 17 percent were part-time or part-year workers.

But in fact MEB is not a proportional payroll tax but a lump sum cost per worker. The implied tax rate per hour varies inversely with hours, wage rate, firm size, and risk preference of workers. The tax is also selective rather than universal, applying only to newly covered workers. The analysis here therefore concludes that, while incidence on newly covered workers may be a good first approximation, other significant effects include: permanent disemployment effects, particularly for part-time workers; redistribution from factors in small to large firms; and gains to previously insured workers. The substitution of in-kind for cash compensation imposes an excess burden of roughly one third of the cost of coverage for newly covered workers. Offsetting this, there may be welfare gains if adverse selection, free riding or myopia contribute to existing gaps in coverage, or if the expansion of health insurance generates positive consumption externalities.

The structure of the paper is as follows. Part I presents a model of the voluntary market for employment-based health insurance to explain the existing gaps in coverage. Empirical evidence on firms and workers without insurance is reported in Part II. Part III reports gross budget costs of several variants of MEB. Part IV discusses partial and general equilibrium effects. The Appendix briefly discusses efficiency and redistributive effects of attempting to achieve universal coverage through a subsidy or tax credit, and the effects of mandating universal coverage rather than mandating coverage of workers only.

I. THE VOLUNTARY MARKET FOR EMPLOYMENT-BASED HEALTH INSURANCE²

Seventy five percent of the U.S. population had private health insurance

² This section summarizes a model of the voluntary provision of employment-based health insurance (Danzon, 1988). It extends earlier work by Rosen (1976) and Goldstein and Pauly (1976).

in 1987. Over 80% of these had employment-based coverage, from current or prior employment of self or another family member (Short et al. 1988). The advantages of employment-based coverage relative to individual coverage are economies of scale, preferential tax treatment and control of adverse selection. The tax advantage and control of adverse selection are more persuasive explanations, since other large groups such as banks and credit unions could presumably achieve similar economies of scale and scope in collecting premium contributions.³ Employed persons without coverage are primarily in small firms or new hires, part-timers or seasonal workers in large firms. The model here implies that these gaps in coverage partly reflect the matching of workers with low demand for coverage to firms with high supply price, but that adverse selection, imperfect sorting and costs of implementing actuarially fair wage offsets also play a role.

A Model of Employment-Based Health Insurance

Assume that product and factor markets are competitive and workers are perfectly mobile. Employee compensation can be paid either as taxable cash wages (W) or as tax-exempt health insurance (K). For the i th worker expected utility is:

$$E(U) = (1-p_i)U_1[W(1-t_i)] + p_iU_0[W(1-t_i) - D + K] \quad (1)$$

where

p_i - probability of getting sick (assumed known to the worker)

D - expected loss if sick

t_i - marginal tax rate (income plus payroll)

and U_1 and U_0 are utility if healthy or sick, respectively.

³Employer contributions to health insurance are not counted as taxable income to the employee. Individual payments for health insurance or medical care are tax-deductible only to the extent total medical expenses exceed 7.5% of adjusted gross income.

Let $S(K)$ denote the worker's marginal willingness to trade cash wages for insurance:

$$S(K) = -dW/dK = p_i U_k / \bar{U}_w (1-t_1) \quad (2)$$

where $\bar{U}_w = (1-p_i) U'_1 + p_i U'_0$.

Consider the j th firm that optimally employs L workers who are homogeneous with respect to productivity. Total labor cost is:

$$C = [W + m_j \bar{p} K] L \quad (3)$$

where

$m_j(L)$ = loading, $m \geq 1$, $m_L < 0$ ⁴

\bar{p} = mean risk

Assume that the insurer knows mean risk \bar{p} for the group but not the p_i of individual workers. The employer's offer function of insurance in terms of cash wages is

$$G_k = -dW/dK = m_j \bar{p} \quad (4)$$

Using eq. 4 and eq. 2, the optimal coverage for the i th worker at firm j (\hat{K}_{ij}) equates the marginal rate of substitution to the after-tax effective load:

$$U_k / \bar{U}_w = m_j \bar{p} (1-t_1) / p_i \quad (5)$$

The standard results for optimal insurance purchase apply. Optimal coverage \hat{K}_{ij} is negatively related to the load (m_j) and to \bar{p}/p_i . Thus being of below average risk operates like an increase in the load. \hat{K}_{ij} is positively related to aversion to health risk (U_k / \bar{U}_w) and to the individual's marginal tax rate. In reality, the after-tax load is negative for most workers in large firms ($m(1-t) < 1$), implying that (more than) full insurance would be optimal, ignoring moral hazard and any direct consumption or investment value from health services.

⁴The assumption $m_L < 0$ is based on the empirical fact that the load is inversely related to group size.

Equilibrium with homogeneous firms The classic model of market equilibrium for non-cash job attributes (Rosen, 1974) predicts a non-random matching of workers and firms. Workers with low demand for insurance self-select into firms with a relatively high m that offer low K ; conversely, firms with low m offer more generous K and attract workers with a high demand for insurance.

This model predicts that small firms would provide less coverage than large firms, since the costs of providing health insurance vary inversely with firm size. Typical values for m are over 1.9 for firms with fewer than 10 employees, compared to under 1.1 for very large firms, with most economies of scale achieved by firms of 50 - 100 workers.⁵ These real cost disadvantages for small firms are exacerbated by tax disadvantages⁶ and state-mandated minimum benefits.⁷ Firms that are large enough to self-insure are exempt from state premium taxes on commercial insurers and mandated benefits, under ERISA's federal pre-emption of state regulation of self-insured benefit plans.⁸

⁵The higher load in small firms reflects administrative costs and costs of medical screening of individual employees. Larger firms are typically experience rated but are not medically underwritten ex ante. The cost differential per worker per year may be as much as \$40 per \$100 of benefits, or at least \$400 per worker for typical coverage for an individual, more for family coverage.

⁶Before the 1986 Tax Reform Act, owners of unincorporated firms -- which includes many small firms -- were not allowed to deduct the cost of their own health insurance, whereas incorporated owners can fully deduct such costs. The 1986 Act permits unincorporated owners to deduct 25 percent of the cost of their own coverage. Only 29 percent of sole proprietors sponsor health plans, compared to 77 percent of corporations. SBA (1986) p.148.

⁷ State-mandated minimum benefits include mental health, maternity care, alcoholism treatment, services of chiropractors and psychologists, and continuation of coverage for workers laid off. Every state has at least one such statute and at least 15 states mandate 17 or more benefits. Greg Scandlen and Brenda Larsen, "Mandated Coverage Laws Enacted Through October 1986", Blue Cross and Blue Shield, Washington D.C. 1986.

⁸Forty one percent of firms over 500 are now self-insured, compared to 5 percent of firms with under 100 employees (SBA, p.158). Many medium sized firms have forms of partial self-funding, such as stop loss coverage or minimum premium plans, that largely avoid premium taxes. Firms with under 20 employees are so

But can small firms that provide $K > 0$ survive if they must compete with large firms in product markets? Consider a competitive market for a single product that can be produced at common production costs by small and large firms if labor costs are equal. All workers who prefer $K > 0$ would be better off at a large firm than at a small firm since $m_1 < m_2$. If there are enough large firms for all workers to get their preferred (W, K) at a large homogeneous firm, small firms can survive only if either (a) they produce different products; (b) they have some other cost advantage (for example, lower levels of other, negative non-cash job attributes); (c) a less mobile factor in such firms (for example, the "owner") is willing to bear the small-firm differential cost of providing insurance; or (d) they can draw on a pool of workers who prefer zero benefits because of high risk tolerance, low p_1 or t_1 , eligibility for public insurance, willingness to incur bad debt in the event of large medical expenses,⁹ or access to dependent coverage through another employed family member.

Equilibrium with heterogeneous firms Consider now a large firm that optimally employs two categories of labor, L_a and L_b , that differ with respect to skill, risk class and risk preferences. Assuming a single health plan is offered, total labor cost is:

$$C = W_a L_a + W_b L_b + \bar{m} p K (L_a + L_b) \quad (3)'$$

far exempt from the recent enactments that make employers that have health plans the primary payer for employees and spouses over 65, with Medicare secondary (SBA, p. 142). Small firms employ approximately 80 percent of workers over 65. Firms with 20 or more employees and health plans are also required by COBRA (1985) to offer 18-36 months of continued coverage, largely at employee expense, to discharged workers, widows, divorced spouses and dependents.

⁹Friedman (1979) analyses the effect of eligibility for free care on the demand for insurance. More generally, Keeton and Kwerel (1982) show that limited liability undermines the demand for insurance.

Solving for the cost-minimizing K and substituting from eq. (2):

$$\frac{-}{mp} = \frac{L_a}{L_a+L_b} \left[\frac{P_a U_k^a}{U_w^a(1-t_a)} \right] + \frac{L_b}{L_a+L_b} \left[\frac{P_b U_k^b}{U_w^b(1-t_b)} \right] \quad (5)'$$

In the case of a heterogeneous workforce, the jointly optimal K is not individually optimal for either group but reflects a weighted average of worker preferences.¹⁰ Workers who are high risk and in high marginal tax brackets receive weight out of proportion to their numbers in determining the common K , in contrast to the Samuelsonian optimality condition for a pure public good.¹¹

If workers in heterogeneous firms do not receive their optimal (W,K) , the incidence of the cost of employment-based health insurance will be partly on other factors. Let \hat{W} , \hat{K} denote the optimal W and K that can be obtained by the i th worker at a homogeneous large firm, $U_i = U_i[\hat{W}, \hat{K}]$ $i = a, b$ is the corresponding reservation utility level. If $\bar{K} > \hat{K}_a$, L_a will not be willing to pay the full cost of the excess benefits. Conversely, if $K < \hat{K}_b$, L_b will pay less than an actuarially fair wage offset. Thus total labor cost to the heterogeneous firm exceeds the cost of hiring the same workforce in two separate and homogeneous firms. Heterogeneity of worker preferences for non-

¹⁰ A similar conclusion is derived in Goldstein and Pauly, 1976; Dye and Antle, 1985; Jensen, 1986. These papers do not address the uneven weighing of preferences and the implications of non-optimal coverage for the incidence of the cost of coverage.

¹¹This analysis implicitly assumes that all workers are equally mobile. If job mobility varies systematically with insurance preferences (for example, both may be correlated with age), preferences of more mobile groups receive higher weight (Kahn, 1987).

cash job attributes operates like a tax on labor. The average tax per worker is:

$$\frac{L_a}{L_a + L_b} \int_{\hat{K}^a}^{\bar{K}} [m\bar{p}K - S_k^a(K)] dK + \frac{L_b}{L_a + L_b} \int_{\bar{K}}^{K^b} [S_k^b(K) - m\bar{p}K] dK$$

where $S_k(K) = p_i U_{k_i} / \bar{U}_{w_i} (1 - t_i)$, $i = a, b$. The tax is positively related to the dispersion in p_i , t_i and risk preferences.

The heterogeneity tax can be reduced by offering multiple plans or cafeteria plans. But this strategy is limited by fixed costs of adding plans (Jensen, 1986) and by the administrative and tax costs of varying wages according to plan selected.¹² In practice most firms offer only one plan and even the largest offer very few. Thus equilibrium probably entails considerable within-plan heterogeneity and nonoptimal (W, K) for many workers.

If $S_i(K) < m\bar{p}K$ for all plans offered by the firm, the i th worker may prefer to be excluded from coverage. If p_i is known to workers but not observable to employers or insurers, allowing voluntary opt outs would create adverse selection risk. In practice, firms specify certain categories of workers as ineligible for coverage, rather than making coverage a voluntary individual choice. This practice is better explained by adverse selection than by unconstrained adjustment to within-firm heterogeneity of preferences.

Coverage of Dependents Demand for coverage of dependents is a major source of heterogeneity of worker preferences -- and one that distinguishes health insurance from other non-cash fringe benefits. The cost to the employee of covering dependents through a family policy at a large firm is typically less than either direct coverage of working dependents through their

¹²Since a wage rebate for choosing a lower cost plan is taxable income to the employee, the employee at the margin would require $dW = pdK/(1-t)$ to be induced to switch, whereas the employer would save only pdK .

own employers or individual coverage in the non-group market, where the load may be as much as 2.0 and is fully paid with after-tax dollars. Moreover, even if workers as a group bear the cost of dependent coverage through a wage offset, the individual worker who opts for dependent coverage pays less than the full marginal cost of coverage, assuming that individual wages are invariant to number of dependents covered.¹³

To illustrate, consider a family where the husband works in a large firm with load m_1 , for a wage that is invariant to number of dependents covered. The wife takes a job without benefits and so has no wage offset. The cost to the family of covering the wife as a dependent on the husband's policy is:

$$C1 = (1 - s_d)\bar{p}m_1K$$

where s_d is the large employer's contribution to dependent coverage¹⁴. If the wife takes a job with a health plan with load m_s and an actuarially fair wage offset, the private cost is:

$$C2 = [(1 - s_e) + (1 - t)s_e]\bar{p}m_sK$$

where s_e is the employer's contribution for primary employees. Even if $s_e > s_d$, $C1$ is likely to be less than $C2$ if wage offsets are community-rated, i.e., workers do not pay individually fair wage offsets for their dependents' coverage. If $m_1 < m_s$ because the husband works in a large firm with a lower load, even the social cost of family coverage is lower.

The demand for dependent coverage creates a risk analogous to adverse

¹³Casual observation suggests that individual wages do not vary with number of covered dependents, and the results in Table 3 are consistent with this. Wittek (1989) implies that many large employers lack data on number and characteristics of dependents covered.

¹⁴If workers at the large firm pay an actuarially fair offset in aggregate, $C1 = [(1-s_d) + 1/n(1-t)s_e]\bar{p}m_1K$, where n is the number of workers at the large firm.

selection for large firms.¹⁵ If a large firm offers dependent coverage with a community-rated wage offset dW_1 , local small firms can offer no health plan, drawing on dependents of employees of the large firm and healthy single workers for whom dW_1 is actuarially unfair. There may be a separating equilibrium, with large employers offering family coverage and small employers offering no health plan. For two worker families this outcome is cost-minimizing. But there may be a negative externality for single workers in the small firm. They may be willing to pay for the cost of coverage, but because of the public good nature of a health plan it is not cost-minimizing for the firm to offer a plan if most (or the marginal) workers prefer dependent coverage through a large firm. If it were costless to charge workers actuarially fair wage offsets for dependent coverage C_1 and C_2 would be equal (assuming $m_1 = m_2$) and firms that employ primarily secondary workers would be more likely to offer a health plan.¹⁶

The large firm that offers family coverage can reduce the risk of attracting workers with large families by reducing the employer contribution s_d , but employees must pay the difference with after-tax dollars. The optimal employer contribution to dependent coverage is a compromise reflecting a weighted average of worker preferences, as in eq.(8), and is likely to be non-optimal for many workers, particularly single workers and others who prefer zero dependent coverage because dependents are covered through own employment. To the extent these workers could get their preferred (\hat{W}, \hat{K}) elsewhere, the incidence of the cost of dependent coverage will be partially on immobile

¹⁵The problem is not unobservability of number of dependents but either high transactions cost or tax constraints that prevent rating the wage offset on the basis of number of dependents covered.

¹⁶The welfare loss to employees in small firms who would prefer to have employment-based coverage is bounded by the difference between the cost of employment-based and non-group coverage.

factors in the large firm.

Consistent with this model of the demand for dependent coverage, most large firms offer dependent coverage, but the employer's contribution is typically less than for the primary employee.¹⁷ Small firms are less likely to offer family coverage: 51 percent of workers in firms under 500 with health plans had family coverage, compared to 64 percent of workers in firms over 500 (SBA, p. 162). A larger percentage of workers in small firms than in large firms are covered as dependents rather than as primary employees (see Table 1). Thus there may be some truth in the complaint of large employers, that they bear the cost of health care for employees in firms that do not provide health benefits.¹⁸

Adverse selection If a worker's risk class (p_i) is known to the worker but unobservable to employers, and if health plan is a significant factor in job choice as the model implies, then the market for employment-based health insurance is subject to adverse selection, just as the non-group market. An employer that offers full coverage and a wage offset that reflects the expected cost of low risks would tend to also attract high risks and lose money. If the employer is experience rated based on the loss experience of the prior year's workforce -- a form of contract that is common for medium and

¹⁷The employer contributed 100% of the cost of dependents' coverage in 60% of establishments, compared to 84% for employee coverage (Chollet, 1984, p. 50-53, based on data from 1977 - 1979). In establishments with under 100 employees that had plans, the employer contribution to dependents' coverage was under 50% in almost one third of establishments, but less than 5% contributed under 50% to the cost of employee coverage.

¹⁸The point here is that large firms (or their workers) bear part of the cost of family coverage for workers in firms that do not provide insurance. The more common allegation is that the costs of health care for uninsured workers is also ultimately borne by firms that do offer insurance, on the assumption that the uninsured either use publicly financed health services (in public hospitals and clinics) or generate uncompensated care in hospitals and that these costs are ultimately recouped from paying patients, through cost shifting. As Phelps (1983) and others have pointed out, this cost shifting assumption is not consistent with revenue maximizing behavior on the part of hospitals.

large groups -- this simply shifts the risk from the insurer to the employer.

But if employee turnover among firms is low because of costs of job switching, a pooling equilibrium may be possible, as in eq. (5)' for the heterogeneous firm. Alternatively, there may be a separating equilibrium, with different firms offering different policies.

With two risk categories, L and H, the separating equilibrium with homogeneous firms is the solution to the problem:

$$\begin{aligned} &\text{Max } EU_1(W_1, K_1) \\ &W_1, K_1 \end{aligned}$$

subject to the information constraint

$$EU_h(W_h, K_h) > EU_h(W_l, K_l) - C_h$$

and break-even constraints:

$$W_i + mp_i K_i = C/L_i \quad i = l, h$$

Thus the cost of switching jobs for high risks (C_h) modifies the information constraint and enables low risks to obtain a higher level of coverage through employment-based insurance than in the individual market, but possibly still less than optimal coverage with full information.

This model implies that tying insurance to employment reduces the welfare costs of adverse selection only for workers or job categories with low turnover rates or where insurance is relatively unimportant compared to other job attributes or costs of switching are high, due to firm-specific capital. Thus adverse selection may remain a factor explaining the common exclusion of new hires, part-timers, temporary and seasonal workers from large group plans.¹⁹ Adverse selection risk may also raise the cost of offering coverage to small firms, which typically have higher turnover rates, greater use of

¹⁹ The mean waiting period is roughly 3 months (Chollet, 1984, p.55), which may be waived if the employee had coverage at a prior job. Only 20 percent of part-time workers (under 35 hours per week) are directly covered through own employment, compared to 74 percent of full-time workers. SBA, p.175.

part-timers and lower-skilled workers than large firms. Consistent with this, small firms are often subject to medical screening of individual workers ex ante, whereas larger employment groups are experience-rated ex post but not medically underwritten ex ante. Note that the current tax treatment of health insurance may exacerbate rather than reduce adverse selection, as is sometimes claimed. The subsidy is positively related to income, which tends to be positively correlated with risk class (through age) and demand for medical care.

Minimum benefit and minimum wage laws State-mandated minimum benefit laws set K_{\min} . Workers for whom $K_{\min} > \hat{K}$ may prefer jobs with no coverage to paying the wage offset $W(K_{\min})$. Similarly, minimum wage laws may set binding constraints on wage offsets for low wage workers, constraining them to jobs without coverage. The minimum wage constraint is more likely to be binding in states with minimum benefit laws; it is also more likely to be binding for part-time workers, since health benefits are a lump sum cost per worker month, so the required wage offset varies inversely with hours worked.

II. Empirical Evidence

Of the roughly 32 million people uninsured in 1984, 8.2 million were private, non-agricultural wage and salary workers, 1.6 million were business owners, 1.6 million were government, farm or household workers, and an additional 3.7 million were on lay-off or looking for work.²⁰ Of the 16.7

²⁰Small Business Administration, The State of Small Business, 1987 Report, (Report from the President to Congress, Chapter 4, hereafter SBA. This Report draws on primarily on two sources. The Health Benefits Data Base is based on a survey of 4,375 firms, stratified by size and industry, with 846 respondents. The results are described in ICF Incorporated, Health Care Coverage and Costs, hereafter ICF. The 1984 Survey of Income and Program Participation is used for population-based data. Other surveys of health plans offered by firms show similar results to the ICF survey, although differences in sampling frame prevent close comparisons. See, for example, Malhotra (1980) and National Federation of Independent Business (1985).

million uninsured not in the labor force, 53 percent were children under 16 (SBA, p.140). The majority (66%) of uninsured workers were in firms that did not offer a plan. An additional 22% were in firms that offered a plan, but the employee was ineligible, and 11% were eligible but declined coverage.²¹

The theory predicts that small firms would be less likely to offer a health plan than large firms, because of diseconomies of small scale in administration costs (load), exacerbated by adverse selection, minimum benefit and minimum wage laws. Such firms would tend to attract workers with low demand for insurance because of low risk class or low risk aversion, or availability of dependent or public coverage. Worker categories excluded from plans in large firms will be those with low demand for insurance relative to the majority of workers in large firms, for whom the group plan is non-optimal; categories subject to adverse selection risk, such as new hires, seasonal and part-time workers; and low wage workers for whom minimum benefit and minimum wage laws are binding.²²

The ideal database for testing these predictions would include information on the characteristics of individual workers and of the firms in which they work. In the absence of such data, Table I reports data on the characteristics of firms without plans. Table II then reports an analysis of worker choice of jobs without coverage.

Characteristics of firms without plans Firms with fewer than 25 employees account for 25.5 percent of all workers but 47.6 percent of all uninsured workers (Table 1). Although only 36.3 percent of workers in firms of less than 25 employees have direct employer-provided coverage, only 19 percent are uninsured: 32 percent have coverage through another family member,

²¹Monheit et al (1985), based on the 1977 NMCES and 1980 NMCUES surveys.

²²These categories are obviously not mutually exclusive.

7.5 percent are eligible for Medicare, Medicaid or other public coverage, and 8.3 percent have other (presumably non-group) private coverage. Dependent and public coverage is much more prevalent for workers in these small firms than in larger firms.

Firms in retail trade, construction and services are less likely to provide benefits than firms in manufacturing, financial services and wholesale trade, controlling for firm size.²³ Incorporated firms and older firms are more likely to have a plan. Controlling for other firm characteristics, firms with higher turnover rates (defined to include lay-offs, recalls and new hires) are less likely to have a plan (Malhotra, p.45). Reasons most commonly given for not offering a plan are size of company and cost of insurance; workers covered under a spouse or parent policy; firm insufficiently profitable; and inability to qualify for a group policy. In establishments that offer plans, the most common categories of workers excluded are: part time (68 percent of plans), and temporary and seasonal workers (50 percent of plans).²⁴

Choice of jobs without direct coverage Some of the implications of the model of simultaneous choice of job and benefits were tested using data from the first year (1983-84) of the Survey of Income and Program Participation (SIPP). The sample consists of wage and salaried workers who held the same job

²³ SBA p.148, based on ICF tabulations of the Health Benefits Data Base, 1986, shows higher coverage in services than most other surveys. Malhotra (1980) estimates that eighty-one percent of employees in establishments without plans are in three industries: retail trade, construction and services. Employment estimates in this survey exclude temporary and seasonal workers.

²⁴SBA p.154. The 1986 Tax Reform Act limits the ability of employers to provide different benefits for different employees. Employees may be excluded from a health plan if they have less than 6 months of service, work less than 17.5 hours a week or less than 6 months during the year, are under 21, have certain non-resident alien status or are included in collective bargaining agreements.

in all twelve months and either had no direct coverage or had coverage through own employment in all twelve months.²⁵ The sample thus excludes new hires who may be without coverage due to waiting periods, so have not selected jobs without benefits in the sense of the model, and the self-employed.²⁶ Means and standard deviations are reported in Table 2. Table 3 reports estimates of a reduced form probit equation for the probability of having coverage in own name for all twelve or for zero months.²⁷

The results are broadly consistent with the theory that workers with relatively low demand for insurance choose jobs where the supply price is relatively high. Firm size, which is a proxy for the loading charge at own job, has the predicted positive effect; however, this is an upward biased estimate of demand elasticity if individuals with low demand for coverage self-select into firms with high costs of providing coverage. As predicted, small firms in urban areas (URBSMF) where there is more likely to be a pool of workers who prefer zero benefits, are less likely to offer coverage.

For two-earner families, the relevant price is the lesser of the price through own job and the price as a dependent of another employed family member. Since men are more likely than women to be employed full time in large firms, married women are predicted to be more likely to take jobs without

²⁵On average, these workers in jobs without direct benefits had coverage through another family member in 8.7 months.

²⁶Active duty and retired military personnel are excluded since they have access to military health services or Champus and are therefore more likely to select jobs without health plans.

²⁷The structural model includes two wage equations for wages with and without benefits, to measure compensating wage differentials for coverage. The estimates reported in Table 3 are for a sample of 2133 individuals, including 1721 with insurance and 412 without insurance. This sample was restricted to persons with no more than a high-school education for whom the compensating wage offset for having insurance should be a significant fraction of wage income. Results of these compensating wage equations are reported in Danzon (1988).

benefits than either married men or single women. This is confirmed by the large negative coefficient for women with spouse present (FEMWSP), whereas for males the probability of having coverage through own job is not significantly affected by marital status. Potential access to public insurance has the expected negative effect on demand for private insurance, but the significance level is low. Since only a very small fraction of this sample of full time workers had any months with public insurance coverage, this does not measure the full effect of these programs on employment and demand for private insurance.

The coefficient of family income (LFINC) is insignificant but negative, contrary to what might be expected if income elasticities are positive and tax price elasticities are negative.²⁸ However these effects may be picked up by years of schooling (YRSSCHL) which is significantly positive. The negative coefficient on family size (LFAMN) also implies a positive per capita income-plus-price elasticity.

To test whether the minimum wage floor is a binding constraint on wage offsets and hence on the demand for insurance, the dummy variable LOWAGE indicates workers earning no more than 1.25 times the minimum wage. The significant negative sign confirms that low wage workers are less likely to have direct coverage. An interaction between firm size and the low wage dummy (LWFSIZE) is positive but not highly significant. A positive coefficient is predicted by the theory that low wage workers in large heterogeneous firms are likely to have more than their preferred level of coverage.

Workers who usually work full time (FTUSL and LHOURS) are more likely to have coverage, consistent with the hypothesis of more binding minimum wage

²⁸Since family income includes own wages, this variable is partly endogenous. A negative compensating wage differential could contribute to the negative coefficient.

constraints for part-time workers or greater adverse selection risk. Of the three health status measures, only self-rated health status (HEALTH) could be unobservable and hence serve as an indicator of adverse selection risk. The sign is negative as expected but it is not significant. Age is not significant. Having a disability that limits ability to work (DISABILITY) reduces the probability of having coverage. Since disability is presumably observable, this evidence does not directly refute the adverse selection hypothesis.

Industry effects are generally larger than effects of individual occupation. Workers in retail trade, services, construction, agriculture and professionals are less likely to have coverage than manufacturing workers. Finding strong industry effects, even after restricting the sample to workers who had been employed at the same job for twelve months and after controlling for own income, family status, hours of work etc., is consistent with the public good model of benefit choice. That model implies that, with imperfect sorting and heterogeneous firms, an individual's coverage is influenced by the characteristics of the marginal workers in the firm.

Union members (UNIONM) are much more likely to have coverage, after controlling for individual, industry and occupation characteristics. This suggests that the simple model of cost-minimization requires modification for unionized firms, although there may be some upward bias if some union members obtain coverage through a union or Taft-Hartley trust, rather than directly from their employer.²⁹

²⁹Goldstein and Pauly (1976) suggest a model in which the benefit mix reflects the preferences of the median union member; other models of union choice are possible. The data requirements for testing a specific model of group choice are substantial (see Kahn, 1987) and are not met by this database. This database can also not distinguish between coverage obtained directly through employment and coverage obtained by union members through Taft Hartley trusts.

Aggregate data on mean characteristics of workers by size of firm (for example, Oi, 1983) provide further evidence of matching of workers with low demand for insurance to jobs with high price of supplying insurance. Workers in small firms are slightly younger and have less education. Thirty-four percent of employees in small firms held part-time jobs, compared to 11.7% in the largest firms. Women are disproportionately represented in small firms, partly because of their propensity to hold part-time jobs. Mean job tenure rises from 4.0 years in small firms to 8.7 years in the largest firms. New employees with less than one year on the job accounted for 17.1% of total employment overall, varying from 35% in small non-unionized firms to a low of 8.7% in large unionized firms (Oi, p.100). Workers in large firms receive higher hourly wages (\$7.33 compared to \$4.90 in 1979)³⁰ and are also more likely to receive all types of fringe benefits.

This evidence suggests that diseconomies of small scale is only one factor contributing to the lower propensity of small firms to adopt health plans. Higher prevalence of workers with low firm-specific capital implies a higher adverse selection risk than for large firms and lower value of fringe benefits to encourage retention.³¹ Lower average earnings in small firms imply a lower demand for coverage due to both income and tax price effects, a higher probability of being eligible for Medicaid or free care, and more binding minimum wage constraints.

³⁰ Mellow (1981) finds that this differential is partly but not completely accounted for by the differences in such measurable worker characteristics as age, education, etc., and unionization. Differences in productivity due to unobserved factors may account for my failure to find compensating wage offsets for health insurance, and similar results by others (Monheit et al., 1985; Leibowitz, 1983; Smith and Ehrenberg, 1983).

³¹ Waiting periods for coverage of pre-existing conditions that are found in most health insurance policies raise the costs of moving.

III. MEASURING THE IMPACT OF MANDATORY EMPLOYMENT-BASED COVERAGE

1. Gross Costs and Incidence

Table 4 shows estimates of budget costs and percent of the uninsured that could be covered by various employment-based options, assuming no change in employment and no waiting periods. Costs are in 1986 dollars. Total gross cost is number of persons covered times average cost per person.³² Total net new cost is computed by subtracting from gross cost the potential savings in uncompensated care and public programs for persons newly insured, and their own current out-of-pocket expenditures on medical care. These offsets add up to about half the gross per capita cost of coverage. The division of total net new cost between public and private cost is based on the assumption that 33 percent of the premium cost is borne by public budgets through tax expenditures.³³ Newly covered workers are assumed to bear the remaining 66 percent of the premium cost through an offsetting wage reduction, plus out-of-pocket co-payments, or 73 percent of the total gross cost.

Under these assumptions, 51 percent of the currently uninsured could be covered by a program mandating coverage of full time workers and their dependents, at a net public cost of \$0.8 billion.³⁴ By comparison, if roughly

³²For details of the assumptions underlying these estimates and costs of other programs for covering the uninsured, see Danzon and Sloan (1986). Average cost per person for persons in families is estimated at \$928; this includes \$767 premium cost and \$161 out-of-pocket cost. In 1986, health care costs average 8 percent of payroll, with an employer outlay of \$1,460 per employee. SBA p.138, based on The Wyatt Company, The Compensation and Benefits File vol.2, no.9, Washington D.C., September 1986, p.5.

³³ The average marginal tax rate (federal-state-FICA) was roughly 33% in 1985, based on data in U.S. Department of Commerce, 1986. This is consistent with Phelps, 1983. This is probably an upper bound for marginal tax rates under the revised tax code, especially for lower income persons.

³⁴The cost to public budgets is slightly higher than this, since this net public cost assumes savings in uncompensated care, which may not be real savings and may not fully accrue to public budgets. Estimates of the magnitude and incidence of uncompensated care on behalf of the uninsured are necessarily rough.

the same number (53 percent) of the uninsured were covered through a combination of Medicaid and a state-run catastrophic program for families under 150 percent of poverty, the net new public cost is estimated at \$7.8 billion, although total gross and net new cost of the latter program is lower.³⁵

If minimum wage workers are exempt from the mandated coverage in order to avoid disemployment, the number of persons newly covered falls, disproportionately for low income families. For example, mandatory coverage of full time employees and dependents, with an exemption for minimum wage workers covers only 14 percent of the uninsured in poverty but 53 percent of the uninsured over 200 percent of poverty. An exemption for firms of less than 10 full time workers reduces persons covered and program costs by roughly one third.

2. Effects on factor prices and employment

The projections in Table 4 overestimate the expansion in coverage because they assume no change in employment and no waiting periods. In reality, any definition of the scope of MEB short of all full and part-time workers offers significant possibilities for evasion.

Since health insurance is a lump sum cost per employee per month, the increase in cost per labor hour is inversely related to hours worked. MEB therefore creates incentives to substitute longer hours for some workers, cut back hours for others and possibly hire more workers at just less than the minimum required to qualify for coverage. The net effect on employment is ambiguous but number of persons covered will be less than projected under the

³⁵Danzon and Sloan (1986). This program generates savings to newly covered individuals of \$2.8 billion.

assumption of no change in employment.³⁶ Reorganization to fall within any small-firm exemption and acceleration of turnover to fall within any allowed waiting periods are also possible. Given the evidence of low firm-specific capital of workers in small firms, such adjustments might be a cost-minimizing strategy.

The following analysis of effects on factor returns and employment ignores the possibility of evasion, or can be interpreted as applying after such adjustments have occurred. Initially the analysis also ignores adverse selection.

A. Partial equilibrium effects

(a) Homogeneous uninsured workers Assume initially that uninsured labor (L) is homogeneous with respect to productivity and preferences. In the unconstrained equilibrium,

$$D(W) = S(W)$$

The employer is now required to provide insurance at cost $P = \bar{p}_m j K$. Denote the value of coverage to the worker by vP , where

$$v = \frac{U_k p_i}{U_{wm} \bar{p}(1-t)} = - \frac{dW_r}{dP}$$

W_r is the reservation wage. For workers who chose jobs without insurance, we may assume that $v < 1$ and $-dW_r < P$. The employer's maximum wage offer falls by the cost of coverage: $-dW_o = P$. Mandating coverage thus imposes a tax per

³⁶Mitchell and Phelps (1975) use Ehrenberg's (1971) estimates of the relation between weekly fringe benefit costs and overtime to estimate a change in employment that they assume is transitory. However Ehrenberg's estimates are based on voluntary changes in large firms, whereas MEB would affect predominantly small firms and only atypical job categories (new hires, part-time and temporary workers) in large firms. Mitchell and Phelps assume a fully-offsetting wage reduction in the long run and no change in employment, by analogy with the payroll tax. Elsewhere they recognize that mandated health benefits are a fixed tax per worker, not a variable tax. Similarly, because MEB is a fixed tax per worker, disemployment effects cannot be estimated by simple extrapolation from the minimum wage experience, which is a tax per hour.

newly covered worker equal to the difference:

$$\begin{aligned} T &= |dW_o| - |dW_r| \\ &= P[1 - v] \end{aligned}$$

The incidence of the tax and effects on W and employment depend on elasticities of demand and supply. In the post-mandate equilibrium, $D(W+P) = S(W+vP)$, and

$$\frac{dW}{dP} = \frac{vE_s - E_d}{E_d - E_s}$$

Wages fall by the cost of coverage only if $E_s = 0$ or E_d is infinite. If E_s is infinite or $E_d = 0$, wages fall by the marginal worker's valuation of coverage: $dW = vP$. Some disemployment occurs if either E_s or E_d are nonzero, even in the absence of a minimum wage constraint. Disemployment will be greater for workers at or close to the minimum wage, particularly for part-timers since the required percentage wage adjustment varies inversely with hours worked per month.

b. Heterogeneity of preferences Consider two types of worker, L_1 and L_2 , who are identical in productivity but L_2 has a stronger demand for insurance. In the pre-mandate equilibrium, L_1 take jobs with $K = 0$, while L_2 take jobs with $K > 0$. Equilibrium requires that $W_1 > W_2$.

If coverage at cost P is now mandated for all workers, some L_2 move to type 1 jobs until $W_1 = W_2$, assuming perfect mobility. If the aggregate supply of $L_1 + L_2$ is not perfectly inelastic, some L_1 drop out of the labor force, W_1 falls by less than P and W_2 increases. Thus L_2 may actually benefit, at the expense of L_1 , as a result of the imposition of mandatory coverage. If $dW_1 = v_1P$, then the net gain to L_2 is $(1 - v_1)P$, which is equivalent to the per

capita loss to the L_1 who do not drop out.³⁷

B. General equilibrium and excise effects

General equilibrium analysis is required to show effects on other factors and consumers, and to show effects when the cost increase varies within the category of newly insured workers. In fact the percentage increase in cost per hour of previously uninsured labor varies inversely with insurance load, hours worked and hourly wage. The cost per firm varies directly with percent of workers newly covered and the labor/capital ratio. All these factors tend to imply higher tax rates on small firms.

The approximate effects of a tax at differential rates across firms can be analyzed using Mieskowski's (1972) analysis of the incidence of a local property tax.³⁸ Consider three factors of production: unskilled labor (L) which is initially uninsured; insured skilled labor (S); and an imperfectly mobile factor "capital" (K), which could include land and human capital of self-employed entrepreneurs. The supply of all factors is assumed fixed in the aggregate. Product and factor markets are perfectly competitive and factors receive the value of their marginal products. L is assumed to be perfectly mobile between firms and to be homogeneous with respect to preferences for insurance; thus the wage rate W is equalized across jobs before and after mandated benefits.³⁹ Let c denote the percentage increase in cost per worker, P/W .

Under these assumptions, if c is uniform for all L , the full incidence is on L i.e. wages fall by P and the full value of compensation falls by

³⁷This is a special case of gains to factors that are substitutes in production to the taxed factor, discussed in c. below.

³⁸Courant (1977) shows that the conclusions of Mieskowski's model may be only approximately correct.

³⁹ This ignores disemployment effects and redistribution due to heterogeneous preferences described above.

(1 - v)P. More realistically, if c is higher in small firms, because of either higher loads, shorter hours or lower hourly wage rates, there are excise effects in small firms and W may fall by more or less than c . Specifically, if high-taxed firms are relatively labor intensive -- which is typically true for small firms -- or if the elasticity of substitution in low-taxed firms is lower than in high-taxed firms, the labor released from small firms cannot be absorbed in large firms at an unchanged wage rate, and W must fall by more than the average tax rate.

Regardless of whether $-dW </> c$, the difference in tax rates across firms requires further adjustments in prices or returns to imperfectly mobile factors. The feasibility of forward shifting is less for small firms that compete in product markets with low-tax, large firms or with imports -- indeed that is one reason they did not offer a plan voluntarily.⁴⁰ Some forward shifting may be possible for high-tax firms in retail trade, construction and services, since imports may provide imperfect substitutes. But it will be limited by competition from larger local firms that face a lower effective tax. In fact the tax on large firms may be negative, due to the shift in cost of dependent coverage.

Where demand conditions do not permit raising prices, imperfectly mobile factors in small firms will bear that part of the tax that represents a deviation from the average rate. Immobile factors could include the self-employed owner who values remaining independent; other skilled labor; or the unskilled, taxed labor, which would then absorb a larger wage reduction than the average for L economy-wide. If there are no immobile factors and if demand is perfectly elastic, high-tax firms will not survive.

⁴⁰ Forward shifting is thus more likely to be feasible if the program is national rather than adopted by a single state.

To illustrate such excise effects, consider a small firm for which uninsured L is 60% of total production costs. Assume that $W = \$10,000$, and the mean cost of the mandated coverage is \$1,000 per worker. W falls to \$9,000, or a 10% reduction. However the cost of coverage in small firms is \$1,500. The cost per worker to small firms therefore rises by 5% ($10,500/10,000 - 1$); total production costs rise by 3% ($.05 \times .6$).⁴¹ This 3% must be borne by consumers or immobile factors. It is much less than the 10% reduction in W borne by L , but this overstates the net cost to L if $v > 0$ ⁴².

In conclusion, if the supply of newly insured labor is highly inelastic to the economy as a whole but highly mobile between firms, and if the tax rate is uniform, wage rates will fall by the average tax per hour. But to the extent effective tax rates differ across firms, $-dW \times dP$ and deviations from the mean tax rate may be shifted forward to consumers or backward to other immobile factors. If newly insured workers in high tax firms are imperfectly mobile -- such as students and secondary workers -- they will bear some of the firm-specific excise effects and their wages will fall by more than the average cost of coverage.

Since the excise effects derive from dispersion in cost per worker and number of workers newly covered, these effects will be greater if coverage is mandatory for dependents and part-timers as well as primary full time workers, and if there is no small firm exemption. The net tax on large firms is likely to be negative, because the cost of covering employed dependents will be

⁴¹This assumes a linear homogenous production function.

⁴²Danzon and Sloan (1986) estimate the per capita premium cost of coverage for individuals in families at \$767 (\$1986). This is upward biased to the extent the uninsured are disproportionately young healthy individuals, but downward biased to the extent they are in small firms with higher overhead costs or in jobs with significant adverse selection risk and high turnover rates. Danzon (1988) estimates the mean annual earnings of individuals in jobs without insurance at \$9,034, based on SIPP 1983-84, for individuals employed a full year with the same employer.

shifted to their primary employers, typically small firms. Two worker families are worse off, but imperfectly mobile factors in large firms gain, to the extent they currently bear part of the cost of dependent coverage.

C. Deadweight costs⁴³

a. Newly insured workers There is a deadweight loss of at least $(1 - v)P$ per newly insured worker, due to the substitution of insurance for cash compensation and possibly non-optimal hours of work. A lower bound estimate of $(1 - v)$ is the marginal tax rate (federal and state income and payroll taxes). Assuming marginal tax rates of 15 percent to 40 percent, the net cost is \$150 - \$400 per newly covered employee, assuming mandatory coverage for primary employees only. If coverage of dependents is mandated, for newly covered single workers the welfare loss could exceed \$1,000. Costs would also be higher if employers are required to contribute to continuation coverage, particularly for jobs with high turnover rates, assuming that the expected cost of continuation coverage is amortized over expected time on the job.

b. Excess costs of dependent coverage The substitution of direct coverage in small firms for family coverage through large firms implies an increase in load of \$100 - \$400 per person, ignoring costs of coordinating benefits.

c. Recouping lost tax revenue Substituting tax-exempt insurance for taxable wages results in loss of federal and state income and payroll tax revenues of roughly \$330 per newly covered worker, assuming an average marginal tax rate of .33. The deadweight loss from raising taxes to recoup

⁴³The estimates of deadweight costs are partial and ignore existing distortions due to the tax subsidy to health insurance.

these tax expenditures depends on the revenue source.⁴⁴

D. Potential welfare gains

a. Public programs and uncompensated care If expenditures on public hospitals and other public programs that currently provide care for the uninsured are reduced, deadweight costs of financing and other non-tax distortions due to uncompensated care might decrease.

b. External consumption benefits Some people may derive external benefits from seeing others insured, even if the cash income and own utility of the newly insured is reduced.

c. Control of adverse selection If adverse selection causes low risk individuals to have less than optimal coverage in the pre-mandate equilibrium, compulsory coverage can in theory make low risks better off, even though they subsidize high risks (Pauly, 1976; Miyazaki, 1977; Dahlby, 1978).

However a welfare gain to low risks from MEB seems unlikely for three reasons. First, a welfare gain from compulsory coverage is less likely if there is also moral hazard. Second, the theoretical possibility of a gain to low risks is derived from a model that assumes a fixed number of high risks. If compulsory coverage applies only to the employed population, individuals normally out of the labor force might seek employment when they anticipate needing medical care, thereby increasing the cost of the compulsory coverage and the implied tax on low risks.⁴⁵ Third, if learning a worker's risk status is not impossible but simply costly, self-insured employers have an incentive

⁴⁴This deadweight cost could be zero or negative if the new program is financed by a per worker cap on the tax subsidy to employer-provided health insurance, thereby eliminating the distortion at the margin that leads to excessive purchase of health insurance and probably contributes to the rate of inflation of health care costs. See, for example, Feldstein (1973), Newhouse (1982).

⁴⁵Assigned risk pools that make non-group coverage available to high risk individuals would not alleviate the problem unless they are much more heavily subsidized than at present. Danzon (1987).

to invest in screening to select good risks. Firms that are too small to self insure have less incentive to do this if the cost of the compulsory coverage is regulated. Enforcement of true pooling would therefore require extensive monitoring of employment practices.

Conclusion

The gaps in health insurance coverage of workers partly reflect the matching of workers with low demand for insurance to firms with high cost of supplying insurance, consistent with the classic model of market equilibrium for non-cash job attributes. But adverse selection and within-firm heterogeneity of worker preferences, particular in demand for dependent coverage, also play a role.

Mandating employment-based coverage would impose deadweight costs on currently uninsured workers equal to at least one third of the costs of coverage. Although compulsory coverage can in theory be Pareto improving in insurance markets subject to adverse selection, mandatory employment-based coverage is unlikely to realize these potential gains. The demand for MEB is therefore more likely to lie in its distributive effects. A full analysis of the political economy of MEB is beyond the scope of this study. However, the analysis here suggest that there would be significant redistributive effects from newly covered workers to currently insured workers and other factors that are close substitutes. At the firm level the overall redistributive effects are from factors in small firms to factors in large firms.

APPENDIX1. EFFECTS OF ADDING MANDATORY INDIVIDUAL COVERAGE (MIC)

Assume that in order to achieve universal coverage, workers who are not covered through employment are required to purchase individual coverage, with an income related subsidy, $b(Y)P$. Other things equal, this will increase the value of not working by

$$[v' - (1 - b(Y))]P$$

where v' is the dollar value of individual coverage. The net effect on the reservation wage of the combined programs is

$$dW_r = [v - v' + (1 - b(Y))]P$$

If the coverage is identical, whether obtained individually or through employment, then $v - v' = (1 - t)$, assuming the employer contributes the full cost of coverage. Mandating individual coverage in addition to employment-based coverage thus increases the reservation wage if $b(Y) > t(Y)$. For any reasonable income related subsidy, this condition is likely to hold for most poor and near poor workers.⁴⁶

Relative to MEB alone, the combined programs of mandated employment-based coverage of workers and individual coverage for non-workers could generate a greater distortion in labor markets. However it would reduce the quasi-adverse selection problem of MEB alone, that marginal labor force participants would seek work only when they anticipated needing medical care, thereby raising the average cost of employment-based coverage and the tax on low risks. Adding MIC to MEB may reduce or increase horizontal inequity between workers and non-workers, depending on t and b .

⁴⁶For example, Sloan and Danzon estimate that if the premium subsidy is set such that the poor and near poor spend no more than 10 percent of income on health care (including co-payments of 10 percent of total medical expenses), this requires a premium subsidy of 100 percent for persons below poverty, 68 percent for those between 100 and 150 percent of poverty, and 50 percent for those between 151 and 200 percent of poverty.

2. A TAX CREDIT TO FIRMS TO PROVIDE COVERAGE

Some states have considered offering a tax credit to firms to provide coverage, rather than mandating coverage. The evidence that small firms tend to attract individuals with a relatively low demand for insurance, for reasons other than price, suggests that such firms may be relatively unresponsive to a subsidy that, for example, offsets the cost differential due to scale.

Existing estimates of the price elasticity of demand for health insurance relate to the change in quantity of coverage for individuals who buy at least some coverage (for example, Phelps, 1973, 1976; Taylor and Wilensky, 1983; Holmer, 1984; Sloan and Adamache, 1986), so may be inaccurate for predicting the all-or-nothing response of the currently uninsured, particularly in firms where some workers already have dependent coverage. This literature indicates elasticities between -0.2 and -0.5. Assuming this is an upper bound, at most 7 - 17 percent of firms without plans would adopt one voluntarily if offered a one-third premium subsidy.

The budget and real social costs of attempting to expand employment-based coverage through a subsidy are probably prohibitive, assuming that it is impossible to tailor subsidies to marginal preferences and target subsidies exclusively at firms that would otherwise not adopt a plan. For example, since 46% of firms with under 10 employees already have a plan, almost half the dollars paid out would be pure rent to inframarginal firms, more if some firms did not adopt a plan or if firms currently without plans are smaller on average than those with plans, even within this size class. The target efficiency ratio would be even lower in larger size classes of firms, because the proportion buying coverage without a subsidy is higher. If the policy objective is to achieve virtually complete coverage of workers and their dependents, using a subsidy targeted at firms probably entails higher total

welfare costs than MEB. But MEB would impose greater costs per capita on currently uninsured workers and other factors in small firms.

3. INCOME-RELATED TAX CREDIT

An alternative program that would achieve universal coverage of workers and non-workers and probably be superior in terms of efficiency and equity is a universal system of income-related tax credits, with mandatory individual contributions.⁴⁷ This would replace the current tax subsidy to employer-provided coverage. The subsidy could be designed achieve horizontal equity between the employed and unemployed and any desired degree of vertical redistribution. By making the subsidy independent of employment, distortions in labor markets are avoided. And by financing the expansion of subsidies to the currently uninsured by a cap on current tax-expenditures for the currently insured, the program could be budget neutral and have negative deadweight costs from the financing side. Programs with similar features have been proposed but not been seriously considered. The main losers would be employees with very generous coverage who are mostly in large firms. This group would certainly lose less and probably benefit from most of the MEB options now under consideration.

⁴⁷ Enthoven (1985) proposes a system of tax credits. But since coverage is not mandatory, many individuals would presumably not purchase coverage unless the subsidy were very large. The proposal here is to provide an income related tax credit that is independent of whether coverage is obtained individually or through employment. The individual who does not provide proof of coverage is taxed for his or her share of the cost of coverage and issued a voucher to purchase private coverage or buy in to Medicaid. A similar proposal is discussed in Danzon and Connover, 1985; Danzon and Sloan, 1987).

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TABLE 1: HEALTH INSURANCE STATUS OF WORKERS BY FIRM SIZE

	<u>Employment Size of Firm</u>							
	<u>Total</u>	<u>1-24</u>	<u>25-99</u>	<u>100-499</u>	<u>500+</u>	<u><100</u>	<u>>100</u>	
Wage and Salaried Workers (000)	79,227	20,270	10,884	11,346	36,727	31,154	48,073	
Percent of All Workers	100	25.5	13.7	14.3	46.2	39.3	60.7	
Uninsured Workers	8,200	3,900	1,200	1,000	2,100	5,100	3,100	
Percent of all Uninsured Workers	100	47.6	14.6	12.2	25.6	62.2	37.8	
	<u>Wage-and-Salaried Workers' Health Insurance Status (%)</u>							
Direct Employer Provided	62.5	36.3	59.9	67.6	76.0	44.6	74.0	
Other Private	3.8	8.3	4.3	2.3	1.8	6.9	1.9	
Covered as Dependent	20.4	31.6	21.0	19.1	14.5	27.9	15.6	
Medicare	2.1	4.0	2.5	2.0	1.1	3.5	1.3	
Medicaid	1.7	2.2	1.7	1.9	1.4	2.0	1.5	
Uninsured	10.3	19.2	11.2	8.3	5.7	16.4	6.3	
	<u>Firms that Provide Health Benefits by Industry (%)</u>							
	<u>Total</u>	<u>1-9</u>	<u>10-24</u>	<u>25-99</u>	<u>100-499</u>	<u>500+</u>	<u><100</u>	<u>>100</u>
		46	78	92	98	100	58	92
Industry								
Construction	51	45	67	93	100	100	51	100
Manufacturing	73	60	81	98	100	100	72	100
Wholesale	78	74	87	90	100	100	77	100
Retail	32	21	59	94	96	100	31	96
Finance, Ins., Real Estate	71	64	89	94	96	100	70	97
Services	67	59	95	85	97	100	66	98
Age of Firm								
10 years or less	44	38	64	96	94	100	44	95
More than 10 years	63	51	82	90	99	100	62	99

Source: SBA

TABLE 2: VARIABLE DEFINITIONS, MEANS AND STANDARD DEVIATIONS

<u>VARIABLE</u>	<u>No Insurance (n=2069)</u>		<u>Has Insurance (n=8635)</u>		<u>DEFINITION</u>
	<u>MEAN</u>	<u>STANDARD DEVIATION</u>	<u>MEAN</u>	<u>STANDARD DEVIATION</u>	
LFINC	10.26	.71	10.35	.52	Log Family Income
LFAMN1	1.27	.46	1.08	.52	Log # Family Members
FSIZEM	2.57	1.66	3.85	1.45	Index of Firm Size 1 = firms < 20; 5 = largest firms
AGE1	34.29	12.68	38.92	11.46	Age
HEALTH	1.98	.98	2.01	.95	Health Status Index
LOWAGE	.68	.47	.48	.50	DV=1 if Wage \leq \$4.80
LWFSIZE	1.66	1.77	1.76	2.12	Low Wage x Firm Size
WELFMTHS	.05	.59	.01	.28	# Months on Welfare (general assistance, other).
UNIONM	.06	.23	.28	.44	Union Member
FEMALE	.69	.46	.38	.49	DV=1 if female
MWSP	.65	.48	.68	.47	DV=1 if married with spouse present
FEMWSP	.50	.50	.20	.40	Female x MWSP
MLTILOCM	.52	.50	.77	.42	Multi-location firms
IAG	.02	.15	.00	.07	Agriculture
ICON	.05	.21	.04	.18	Construction
IRETTR	.29	.46	.09	.29	Retail Trade
ISERV	.13	.34	.04	.20	Services
IPROF	.26	.44	.21	.41	Professional
URBAN	1.04	.73	1.09	.72	Urban
URBSMF	.15	.36	.06	.25	Urban x Small Firm (<20)
LHOURS	3.33	.51	3.71	.15	Log Hours
YRSSCHL	12.28	2.59	13.15	2.78	Years of Schooling
PHMJD	.00	.04	.02	.14	PhD/MD/JD
MABA	.12	.33	.22	.42	MA/BA

TABLE 2: VARIABLE DEFINITIONS, MEANS AND STANDARD DEVIATIONS

(continued)

<u>VARIABLE</u>	<u>No Insurance (n=2069)</u>		<u>Has Insurance (n=8635)</u>		<u>DEFINITION</u>
	<u>MEAN</u>	<u>STANDARD DEVIATION</u>	<u>MEAN</u>	<u>STANDARD DEVIATION</u>	
VOCDEG	.06	.24	.07	.26	DV=1 if Vocational Degree
NOYRTRN	.81	.39	.74	.44	DV=1 if no year of training
TENUREM	4.67	5.50	10.13	8.48	Years in this job
EXPERI	6.49	7.36	10.78	8.76	Years in this type of work
FTSUL	.59	.49	.95	.22	Full time usual
LWEEKS	3.95	.02	3.96	.01	Log Weeks
NWWHDAB	.07	.25	.06	.24	Has work disability
WKSCLKY	.20	1.28	.09	.77	Weeks looking for work
OADM	.16	.37	.28	.45	Administration
OFARM	.03	.16	.01	.08	Farming
OCRAFT	.07	.25	.14	.35	Craftsman
OSERV	.25	.44	.07	.26	Service
OTECH	.36	.48	.31	.46	Technical
AGESQ	1336.22	940.14	1646.34	940.47	Age Squared
WHITE	.89	.31	.89	.31	DV=1 if white
WAGE	9034.18	7235.16	21,986.55	12,319.74	Annual Earnings

Note: Sample includes all years of schooling

TABLE 3

HEALTH INSURANCE AT OWN JOB:
Individuals with Schooling \leq 12 Years

(Reduced Form Probit)

<u>Variable</u>	<u>Coefficient</u>	<u>T-ratio</u>	<u>Mean of X</u>
Intercept	-21.845	-3.036	1.000
Family income (ln)	-0.076	-1.453	10.218
Family size (ln)	-0.212	-3.624	1.161
Firm size	-0.186	6.486	3.531
Age	-0.018	-1.196	38.598
Health	-0.004	-0.163	2.200
Low wage	-0.416	-3.857	0.417
Low wage x firm size	0.022	0.713	1.300
Welfare months	-0.089	-1.403	0.025
Union member	0.848	10.092	0.274
Female	0.139	1.437	0.461
Spouse present	0.106	1.204	0.672
Female, spouse present	-0.871	-7.803	0.275
Multi location firm	0.080	1.105	0.491
Agriculture	-0.422	-1.563	0.011
Construction	-0.744	-6.723	0.046
Retail trade	-0.592	-8.429	0.159
Services	-0.651	-6.789	0.065
Professions	-0.190	-2.459	0.316
Urban	-0.015	-0.387	1.021
Urban small firm	-0.198	-2.117	0.081
Hours (ln)	1.773	14.351	3.618
Years school	0.051	3.777	11.123
No training	-0.054	-0.887	0.758
Job tenure	0.035	6.985	9.728
Experience	-0.007	-1.582	10.345
Full time usual	0.640	8.133	0.868
Weeks (ln)	4.022	2.213	3.954
Disability	-0.249	-2.463	0.073
Weeks looking	-0.039	-1.765	0.153
Administration	0.248	-2.314	0.083
Farming	-0.683	-2.938	0.016
Craft	0.151	1.640	0.176
Services	-0.199	-2.199	0.146
Technical	0.269	3.418	0.315
Age squared	0.000	1.662	1649.2
White	0.044	0.560	0.883

TABLE 4

ESTIMATED COSTS OF OPTIONS TO COVER THE UNINSURED^a

Population Covered	Recipient Share (\$)		Percent of Uninsured Covered	Total Gross	Cost (millions \$)	
	Premium	Total			Private	Public
<u>Mandatory Employment Only</u>						
1. All uninsured full-time employed	67	73	33	11,307	4,758	912
2. All uninsured full-time employed and their dependents	67	73	51	15,863	6,264	809
3. Same as #1 except exempt minimum wage workers	67	73	25	8,882	3,702	881
4. Same as #2 except exempt minimum wage workers	67	73	38	11,738	4,640	874
5. Same as #1 except exempt employees in firms with under 10 employees	67	73	23	7,802	3,283	629
6. Same as #2 except exempt employees in firms with under 10 employees	67	73	35	10,946	4,322	558
<u>Medicaid Alternative</u>						
7. Medicaid for uninsured single parent families in poverty and for families with unemployed head; CHIP for other poor and families with incomes 100 to 150 percent of poverty	0	10 poverty	53	13,891	(2,784)	7,767
	NA	37 101 to 150 percent of poverty				4,983

^a Assumes no change in employment. Source: Danzon and Sloan (1986).