

Wages, Health Insurance and Pension Plans: The Relationship Between Employee Compensation and Small Business Owner Income

William J. Dennis, Jr.

ABSTRACT. Small business owners claim that their ability to provide higher wages and more frequent employee health insurance and pension benefits is severely constrained by the profitability of their firms. This paper examines the proposition that employee wage levels, provision of employee health insurance, and sponsorship of an employee pension plan are associated with small business owner income. A large trade-association survey supplies the data for the inquiry. Regression analysis (OLS and logistic) demonstrates that all three forms of employee compensation are tied to business owner income. Further, the business owner income variable “washes out” the generally accepted relationship between size of business and wages, though not the relationships between size of the business and the presence of health insurance nor between the size of business and the presence of pension benefits. The regressions also indicate that unit costs of health insurance and pension benefits are higher for those employing 10 or fewer and 20 or fewer respectively compared the other small businesses.

1. Introduction

The evidence leaves no doubt that small business has created a substantially disproportionate share of the net new jobs over the last three decades (Kirchhoff and Greene, 1995; Acs et al., 1998). Though occasional contrary assertions regarding small business and job generation appear (Brown et al., 1990; Davis et al., 1993; Stevens and Lane, 1998), more interesting criticism of small business

employment focuses on the “quality” of new jobs produced. Critics pejoratively characterize these new jobs as “hamburger flippers” or “dead end.” They argue that these jobs are customarily low paying, have few employee benefits, offer little opportunity for advancement, and generally are undesirable. Birch (1996) responds to the critics arguing that, at least with respect to new jobs, the low pay assertion is not true and he compares the growth of high wage industries and low wage industries to support his view. However, Randy Ilg, an economist with the Bureau of Labor Statistics, flattened the new job/bad job idea. Ilg compared the growth in high wage and low wage employment with an occupation/industry matrix and concluded that the U.S. economy was creating twice as many “good jobs” as “bad jobs” (Ilg, 1996). Jared Bernstein of the labor-financed Economic Policy Institute conceded that Ilg’s work accurately “stops the misconception that we’re creating only hamburger-flipping jobs” (Jones, 1998, p. 3B). But critics continued to express concern over low wages and the lack of benefits in many positions. They also noted that a disproportionate share of lower paying jobs and those without health insurance and pension benefits reside in small businesses (Brown et al., 1990; Belman and Groshen, 1998; Harrison, 1994; Pierce, 1998). While their conclusions were usually couched in terms of small businesses being less desirable places to work than large firms, their observations possess significant policy implications. The most conspicuous of these are that small business employee circumstances should be upgraded through higher minimum wages, mandatory employer-provided health insurance and

Final version accepted on December 20, 2000

NFIB Education Foundation
1201 “F” Street, NW
Suite 200
Washington, DC 20004
U.S.A.
E-mail: denny.dennis@nfib.org



Small Business Economics 15: 247–263, 2000.
© 2001 Kluwer Academic Publishers. Printed in the Netherlands.

pensions, and required small business adoption of other "employee-friendly" employment policies.

1.1. *Differing compensation levels*

It is well-known that wages are higher in large enterprises than in small ones, other factors equal. Two recent studies illustrate. Belman and Groshen (1998) found that after controlling for six other factors, e.g., occupation, human capital, industry, firms employing over 1,000 people paid eight percent more than firms employing less than 25. The authors also found that firms with 25–99 people paid 5.9 percent more than those under 25 and firms employing between 100 and 499 paid 4.8 percent more. Boden (1997) estimated that 5–8 percent of the substantial nominal wage differential could be attributed to firm size. Though the author used only three size classes for his analysis, the wage gap systematically increased as firm size rose. This recent work shows the current wage premium for working in a large firm is between 5 and 10 percent after controlling for a significant number of factors that could influence wage rates. The results of Boden's research differ from Belman and Groshen's in that Boden's wage differentials appear to grow progressively with firm size. Belman and Groshen's wage differentials are not linear. They appear between the largest firms and all other sizes and between all other sizes and the smallest.

Debate on President Clinton's Health Security Act of 1993 focused attention on gaps in employer provided employee health insurance coverage. One of the most notable gaps was along the business size dimension. Ninety-four (94) percent of firms employing 1,000 people or more offered an employee health insurance plan (77 percent of employees participating) compared to 33 percent among firms with 10 or fewer (26 percent of employees participating) (Employee Benefit Research Institute, 1994a). The percentage of firms with a plan rose in a curvilinear manner by firm size until the 250–499 employee level. The frequency of employer provided health insurance stopped rising by firm size at that point. These data did not adjust for "other factors" as did the wage numbers. But Belman and Groshen (1993 data) did control for employee skills, occupation, demographics, and industry finding that the 1–24

employee group was 44 percentage points less likely to offer health insurance than the 1,000+ employee group. Moreover, the 25–99 employee group in the same analysis provided the health benefit 23 percentage points more frequently than did the smallest size group. Since the Clinton proposal's collapse in 1994, the percentage of firms providing employee health insurance has changed marginally. Employer-provided coverage appears to have increased modestly through 1997 and then declined,¹ but the basic figure remains similar to that of the early 1990s.

Sponsorship of employee pension plans exhibits the same pattern across business size as does health insurance except that pension coverage is less frequent in general and the difference between large and small firms is even sharper. Twenty (20) percent of businesses with under 25 employees sponsor pension plans (15 percent of employees participating) compared to 85 percent of firms employing 100 or more (66 percent of employees participating) (Employee Benefit Research Institute, 1994b). Controlling for occupational factors, etc., however, the firm size differences except those between the very largest and the remainder seem to evaporate (Belman and Groshen, 1998). But larger firms are also likely to provide employees more options and, for employees concerned about security, are more likely to absorb investment risk with a defined benefit program. Recent evidence suggests growth in the number of employees participating in small business pension plans (Purcell, 1999), yet the gap between large and small remains yawning.

Larger firms on average provide greater compensation than do smaller ones. Wages are higher; the likelihood of health insurance coverage is greater; and, the opportunity to participate in a pension plan is more frequent.² However, total employee compensation has additional components, e.g., paid vacations, life insurance, but there is no reason to believe that these additional benefits would change the general pattern of compensation by firm size as outlined above. In fact, they reinforce it. Establishment-based data from the Bureau of Labor Statistics show that larger establishments are more likely to offer a broader array of benefits than small ones (U.S. Department of Labor, 1994, 1995).

1.2. *The reasons for firm-size compensation differentials*

Kalleberg and Van Buren (1996) identify seven clusters of variables that may explain why small businesses as a group pay lower wages, offer fewer benefits and promotional opportunities, but provide greater autonomy.³ Among the more specific variables and empirically justifiable within the clusters is the quality of human capital (Brown and Medoff, 1989). Larger firms employ more qualified people than small ones and, therefore, pay them more, though it is not clear why large firms hire more qualified people in the first place (Kalleberg and Van Buren, 1996). A variant is that larger units are more productive (Idson and Oi, 1999). The employees of larger firms are, therefore, of relatively greater value and are compensated accordingly. Another frequent proposition is that the large firm wage premium is an "efficiency wage," offered because of the greater difficulty supervising employees in certain situations. A fourth is the presence of "dual labor markets," i.e., the economy is divided into two non-competing labor markets with little mobility between them. Yet, none of these is totally satisfactory.

In contrast to the multiplicity of studies on firm size and wages, few have been conducted on firm size and benefits (Andrews, 1989). The result is fewer explanations for firm size differences in benefits provided. Yet, many of the same theories put forward to explain wage differences could also be put forward to explain benefit differences (Andrews, 1989; Kalleberg and Van Buren, 1996).⁴

Small business owners view matters in simpler terms. In survey after survey they say that they do not provide health insurance or pensions more frequently because they cannot afford to do so (including variants of that answer).⁵ Hall and Kudor (1990), for example, reported in the late 1980s that the most frequent reason for not offering employee health insurance was "premiums too high" followed by "business insufficiently profitable." A Lewin-ICF survey found that two-thirds of small businessmen and women owning firms of less than 10 employees and without health insurance cited insufficient profits and high insurance costs as the reason (U.S. Small Business Administration, 1994). Jensen and

Morrissey (1998) in their 1993 and 1995 surveys found that the most frequent "important" reason for not providing employee health insurance was "premiums too high" followed in frequency by "profits too uncertain." The single most frequent answer provided Rice et al. (1998), was "premiums too expensive," the same answer obtained by Gabel et al. (1999), two years later.

Similar results appear in surveys asking small business owners why they do not sponsor employee pension plans. The author (1985) found that the most frequent response to the question in the mid-1980s was "can't afford one." In a study prepared for the Small Business Administration by Lewin-ICF, 61 percent of respondents cited employer-related reasons such as firm income is too unstable or uncertain as the primary cause for not offering a plan, (U.S. Small Business Administration, 1993). Matthew Greenwald & Associates (1998) posed the issue differently for EBRI and asked for the factors that would make small business owners seriously consider setting up an employee pension plan. The most frequent answer was "an increase in the businesses' profits." The second most frequent answer was "business tax credits for starting a plan," effectively a means to reduce the benefit's cost. A year later (1999), the most frequently cited reason for not having an employee pension plan was that "revenue is too uncertain to commit to a plan" tied in frequency with the part-time or seasonal nature of the workforce (Yakoboski et al., 1999).

A consistent theme runs through these responses. Small business owners plead that their businesses simply do not provide enough income to afford the benefits in question. But, "afford" is both a subjective and a relative term. What is affordable to one may not be affordable to another. Still, if small business owners respond truthfully in surveys, there should be a relationship between wages paid, the frequency of employee health insurance provided, and the frequency of sponsorship of an employee pension plan on the one hand and the income an owner derives from the business on the other. In other words, the greater the owner's income from the business, the better will be employee compensation. The fundamental hypothesis of this paper, therefore, is that a positive relationship exists between owners' business income and employee compensation in

the forms of wages, health insurance and pension benefits.

The fundamental hypotheses is not novel. As early as the 1950s, the relationship between business profitability and wages drew attention. Slichter (1950), writing about male blue collar workers in manufacturing industries, for example, concluded, “. . . where managements can easily pay high wages they tend to do so, and . . . where managements are barely breaking even, they tend to keep wages down” (p. 88). However, the relationship seems to have lost currency in recent policy discussions. It is normally not an issue on such questions as the minimum and “living” wage and on various health insurance or pension proposals as well as in discussions of the disadvantages to working in smaller firms (Brown et al., 1990; Harrison, 1994; Belman and Groshen, 1998; Pierce, 1998). Perhaps the topic has been lost because the tie no longer empirically exists. Perhaps it has been lost because small firms and large, the focus of earlier research on profitability and compensation, are assumed to behave identically. In any event, a reexamination of the relationship with a specific focus on smaller firms is appropriate given the importance of small business as an employer.

The remainder of this paper is organized as follows: Section 2 describes the data used in the analysis. Section 3 lays out the full set of hypotheses, the variables to be tested, and the analytic strategies. Section 4 presents the statistical results and discusses their implications. Section 5 offers conclusions and suggests directions for subsequent research.

2. The data

The data on which this paper rests were collected in a mail survey of a randomly selected sample of small business owners who are members of the National Federation of Independent Business (NFIB). The relevant questions were “add-ons” to the principal topic of the survey, proposed changes to the Social Security system. However, the resulting data set is the only one of which the author is aware that combines information on owner income from the business with wages paid employees working in the business as well as the presence or absence of health and pension

benefits. The questionnaire was first mailed in early June, 1998. Two follow-up waves were mailed at intervals of just over three weeks each. Sampled members (8,004) returned 1967 usable questionnaires for a response rate of 24 percent.

A business organization survey opens a variety of issues regarding data quality. The most important involve the universe from which the sample is drawn, i.e., is the NFIB membership representative of the small business population, some other population, or only the NFIB membership?, and potential response bias, i.e., are sampled survey respondents and sampled survey non-respondents alike?

The NFIB membership is large. It includes over one-half million owners of independent businesses throughout the country. About one in 10 employers in the U.S. is a member. Ninety-eight (98) percent of the members have firms with fewer than 100 employees which also makes these enterprises “small” for all intents and purposes. The median number of employees is six. The businesses of these owner-members are spread across the country and found in all industries.

The NFIB membership generally reflects the greater small business population (Dunkelberg and Scott, 1983). But when the NFIB membership (and survey respondents) is compared to the known profile of small firms, some specific differences immediately emerge. The first is business age. The businesses in the NFIB sample are older on average than are those in the population. The median age of businesses owned by survey respondents is 15 years; Nucci calculates the median age of an employing establishment at five years. Since the Dun & Bradstreet files, another possible sampling frame, also under-represent the newest and the smallest businesses, findings from an NFIB or a D&B sample are both biased toward more established businesses and their owners. NFIB members are also disproportionately located in small cities and towns. A recent comparison between NFIB and Dun & Bradstreet (D&B) samples indicated that the former contained 21 percent of its population in cities and surrounding areas of over one-half million compared to 28 percent for the latter (NFIB, 1999). Finally, despite the six employee median, NFIB member respondents are larger on average than is the population

(almost 60 percent of businesses have four or fewer employees). This discrepancy is particularly important given that size is associated with many other factors critical to the current inquiry. Two of the most noteworthy consequences are higher levels of earnings and more frequent provision of employee health insurance and pension plans among NFIB survey respondents than among the general population. The survey data are, therefore, weighted for the analysis to ensure that they reflect the size distribution of the population.⁶ Weighting by employee size has the effect of lowering the proportion of owners in the highest income category by five percentage points or well over 10 percent, lowering average wages by five cents an hour, and reducing the frequency of health insurance provision by two percentage points and pensions by three percentage points.

Surveys of samples from the NFIB population and the Dun & Bradstreet population, the most frequently used small business sampling frame, normally yield similar results. For example, in 1995, The Gallup Organization conducted a survey for NFIB of small business owner views about the U.S. Small Business Administration and its programs (Dennis, 1995). Half of the sample was drawn from the D&B files and half from the NFIB member files. Not one answer resulted in a statistically significant difference between the populations, and many whole percentages were identical. An internal piece of NFIB marketing research in 1993 also found that samples of NFIB members and the universe as represented by Dun & Bradstreet produced virtually indistinguishable outcomes on a variety of dimensions such as interest in public affairs and reading habits (NFIB, 1993).

3. Variables and hypotheses

This paper employs three dependent variables to test its hypotheses – average hourly wages paid, presence of employer provided health insurance, and presence of an employer sponsored pension plan. The first dependent variable is the employer's estimated average hourly wage for all full-time employees. The questionnaire asks respondents for the average hourly wage for all employees and provides nine response categories ranging from < \$6.00/hour to \$25.00+/hour. The

response categories are not equi-distant. They start at \$2/hour intervals and end at \$5/hour intervals. To estimate an average wage for *full-time* employees, each respondent was initially assigned the mid-point of the category marked. Since the survey provides information on the number of full-time and part-time employees, it is possible to calculate the percentage of the workforce engaged in each arrangement. Part-time workers are paid on average about 60 percent of the wages full-time workers are paid (U.S. Department of Labor, 1998). These data, in combination, make it feasible to solve for the average wage of full-time employees.⁷

The second dependent variable, i.e., provision of employee health insurance, has two values, "yes" and "no." "Yes" means that the owner provides health insurance for at least *half* of his full-time employees. "No" means that the owner may provide health insurance for some full-time or part-time employees or none whatsoever, but not a majority of full-time people. The third dependent variable, i.e., sponsorship of a pension plan, follows the same pattern as health insurance. Its two values are also "yes" and "no." "Yes" means that the owner sponsors a pension plan for at least *half* of his full-time employees. "No" means that he does not.

The data for each of these variables rely on self-reports from the business owner/employer. These reports cannot be verified. The lack of independent verification should not cause problems for the second and third variables as the meanings of a "majority of full-time employees" and "provision of employee health insurance (pension plan)" do not appear ripe for either misinterpretation or inaccurate reporting. Average wages paid across the entire work force is more problematic since it is not a customary business calculation and requires an owner estimate. However, the distribution of responses suggests that business owners answered with reasonable accuracy. The response pattern formed a bell-shaped curve across the nine wage intervals with the highest point on the curve lying between \$10.00/hour and \$12.00/hour (22 percent of valid responses). Forty-one (41) percent of owners report average wages lower than \$10.00/hour and 36 percent report them higher than \$12.00/hour. The average wage for all non-supervisory

employees during the survey month was \$12.74 (U.S. Department of Labor, 1998).

3.1. *Owner income*

This paper employs six independent variables. The first is owner income *from the business*. Owner income is the critical variable as the fundamental hypotheses center on the relationship between owner income and the provision of greater/lesser employee compensation.

The survey question eliciting the owner's business income reads, "How much did you take out (salary, dividends, draw, etc.) of this business last year?" It specifically cites income from the business, purposefully excluding other income or other family member income. These two other sources of income, but particularly the latter, can make a significant difference in the amounts of money reported (U.S. Small Business Administration, 1996, Joel Popkin and Company, 1998). Response classes for the question are eight intervals of \$10,000, each ranging from under \$10,000 to \$70,000 or more.

The weighted data from the NFIB survey show the median income of owners to be just over \$40,000. These results indicate a wealthier population than do other sources. The Survey of Consumer Finances, for example, reports the median income of families (from all sources) headed by self-employed individuals to be \$39,000 (1995 data) (Kennickell et al., 1997). The Current Population Survey shows the median income of full-time, full-year self-employed people to be \$26,000 (1994 data) (U.S. Small Business Administration, 1996). Several factors explain the discrepancy between these figures including the date of the survey and the definitions of "income" and "self-employed." Another is the longer tenure of NFIB member enterprises. While business survival is a function of both profitability and opportunity costs (Gimeno et al., 1997), longer tenure implies greater experience presumably leading to more efficient operation and more rejected outside opportunities. Hence, income should be greater with longevity, other factors equal.

Weighted survey results also show almost 30 percent of respondents with an income of over \$70,000. Seventy thousand and above constituted

the highest income category on the survey. The failure to include higher response categories weakens the data for purposes of statistical manipulation. The relationships in all likelihood would have been more robust if the range of income categories had been stretched on the high side.

Just over one in four respondents (27 percent) either "prefer(red) not to answer" or refused to mark an income category. If such respondent reservations were disproportionately exhibited by owners with high or low income, the results of this inquiry could be distorted and leave a false impression. For example, should that 27 percent be overwhelmingly high income owners who do not provide employee health insurance, any correlation between employer income and the provision of employee health insurance could be significantly overstated. Similarly, if that 27 percent were overwhelmingly low income and sponsored employee pension plans, any correlation could be significantly understated.

Following a careful assessment, it would appear that non-response to the income question has little, if any, influence on the outcome of this inquiry.⁸ Non-respondents are more likely to exhibit a less profitable business profile. Their businesses are also more likely to provide fewer employee benefits. Those failing to provide income information, therefore, appear to complement the remainder of the analysis. Nonetheless, the group is ignored from this point. In fact, the primary reason that the number of cases in the survey and the number of cases in the analysis differs is the deletion of non-respondents to the income question.⁹

3.2. *Employee size of business*

The second independent variable used in this analysis is the size of a business measured by the number of full-time employees. The size variable is included due to its persistent relationship with employee compensation even when controlling for other likely influences. The literature on wages and firm size is extensive. Belman and Groshen (1998) present a lengthy summary of it to accompany their analysis. The association between employee benefits and firm size (other factors equal) is less well documented, though Haber (1993) concludes from Current Population Survey

data that the size of business is the most important factor influencing whether a firm offers health insurance or a pension plan. The employee benefits/firm size association is also intuitively satisfying. Given the economies of scale in marketing health insurance and the small group problem in underwriting it, it is highly likely that firm size will be related to the presence of health insurance, other factors equal. The advantages accruing to larger groups is more evident in health insurance than it is in pensions plans. New forms of pension plans have been instituted, e.g., SIMPLE, to simplify the pension process for smaller firms, though it takes time for new forms to be recognized, understood and adopted by small business owners (Yakoboski et al., 1999). Still, even the new varieties customarily require some up-front, fixed costs which must be spread over relatively few employees.

The author transforms the linear employee size of business variable into a series of dummies. The specific size groups created include 1–4 full-time employees, 5–9 full-time employees, 10–19 full-time employees, 20–49 full-times employees, and 50+ full-time employees. The reference group is always the 10-19 category. Part-time employees are excluded from the count since the health insurance and pension questions address benefits for full-time employees only. The purpose of the transformation is to determine if and where specific business sizes diverge from one another. Dummies, in this circumstance, provide more useful detail than would a simple linear variable.

3.3. *Age of the business (under current ownership)*

The third independent variable incorporated into the analysis is the number of years that the individual(s) has owned the business. Some evidence suggests that employees in new firms settle for less compensation, presumably on the grounds that they will share in the fruits of a successful venture (Ehrenberg and Smith, 1988). This is an interesting, though questionable, proposition because it assumes among other things that an employee *a priori* knows an entire series of facts about the business and its prospects of success.

New firms often cannot locate reasonably

priced health insurance, if they can locate any at all. The insurance industry is reluctant to sell health insurance to them due to potential adverse selection. New businesses also usually need all the capital that their owners can raise to finance their ventures and have little to spare for expenditures like health insurance or pensions. Finally, older businesses have older owners. Older owners given their personal situations may be more sensitive to the value of benefits (in lieu of wages). The expectation, therefore, is that older firms will be more likely to provide health insurance and pensions than younger ones.

A firm stops being “new” at some juncture and the hypothesized gains-sharing incentive is lost. One or two years may be adequate for health insurance. However, the author is aware of no evidence that suggests the number of years a business must exist before the mantle of “newness” disappears. As a result, the author arbitrarily chose five years, a period in which roughly half of start-ups will have perished (Phillips and Kirchhoff, 1989; Nucci, 1999). The business age variable was, therefore, transformed into a dummy with 0–5 years equaling “1” and those of longer duration equaling “0”.

3.4. *Industry*

Pay scales in certain industries are higher than in others, even when controlling for compensating differentials and unionization, e.g., Brown and Medoff (1989). The author, therefore, divided major industries into those paying above average wages and those paying below average wages, and placed them in an 0–1 dummy. The former included agriculture, retail and non-professional services. The latter included construction, manufacturing, transportation/communications, wholesale, financial services, and professional services, e.g., legal, health, engineering. The survey data were insufficiently detailed to break down industries further.

If wage levels are associated with industry, higher paying industries also are more likely to provide additional compensation in the forms of health insurance and pension plans. The presence of health insurance and pension plans should, therefore, be more frequent in some industries than in others.

3.5. *Legal form of business*

There is no reason that the legal form of a business, other factors equal, should be associated with the wages paid employees. However, the differential effect of tax law on different legal forms could impact the level of employee benefits available in each. A glaring differential created by tax law is the ability of C-corporations to deduct the health insurance it buys for its owners from its income taxes. The same treatment is not afforded to those who pay taxes as individuals (non-C-corporations). It has been demonstrated that different tax treatments result in a lower level of employee health insurance coverage among proprietorships, partnerships, and S-corporations than would be true if the tax benefit were available to these firms (e.g., Gruber and Poterba, 1994; Monheit and Harvey, 1993). The issue is not the legal form per se, but the tax benefits accruing to one over the other which results in greater incentives for one group to purchase health insurance. Tax and other law governing pensions do not distinguish as sharply unless defined benefit plans are at issue or the firm incurs liability for various reasons.

Initial analysis with proprietorships, partnerships, S-corporations, C-corporations and missing (non-response) data found that all forms but C-corporations produced similar results. Thus, the four were pooled into one category and juxtaposed against C-corporations in a dummy.

3.6. *Labor market tightness*

The sixth and final independent variable is the "tightness" of the labor market. One clearly expects that tight labor markets will produce higher wages and more frequent benefits, other factors equal. However, it is arguable that the market response will be seen first in wages as wages can change incrementally while the institution of an insurance or pension plan appears to require a minimum lump sum and a greater owner commitment.

The only geographic data on respondents is the state in which the business is located. A state designation is far from satisfactory for current purposes given that small businesses usually operate in localized markets. But, state unem-

ployment data for the month of May, the month preceding conduct of the survey, were used.

3.7. *Missing variables*

No data were available on the characteristics of the labor force or the nature of the jobs involved. It was, therefore, not possible to include the human capital variables that are important in investigations such as these. Instead, the author was left with variables concerning the employing business, the environment, and the owner. In addition, data were not available on the rural/urban location of a firm. Since wages are measured in nominal terms and wages are nominally lower in rural areas than in urban areas, the lack of these geographic data increase measuring problems. Finally, variable annual income, a factor often cited by small business owners for not providing a particular employee benefit, was not included in the data set, either.

3.8. *Hypothesized outcomes*

The three simple models testing the hypotheses appear in (1)–(3).¹⁰

$$W = \beta_0 + \beta_1 \text{In} + \beta_2 \text{dAge} + \beta_3 \text{dInd} + \beta_4 \text{dCrp} + \beta_5 \text{L} + \beta_6 \text{dWe} + \beta_7 \text{dSm} + \beta_8 \text{dMid} + \beta_9 \text{dBig} + \epsilon \quad (1)$$

$$\text{dHI} = \beta_0 + \beta_1 \text{In} + \beta_2 \text{dAge} + \beta_3 \text{dInd} + \beta_4 \text{dCrp} + \beta_5 \text{L} + \beta_6 \text{dWe} + \beta_7 \text{dSm} + \beta_8 \text{dMid} + \beta_9 \text{dBig} + \epsilon \quad (2)$$

$$\text{dP} = \beta_0 + \beta_1 \text{In} + \beta_2 \text{dAge} + \beta_3 \text{dInd} + \beta_4 \text{dCrp} + \beta_5 \text{L} + \beta_6 \text{dWe} + \beta_7 \text{dSm} + \beta_8 \text{dMid} + \beta_9 \text{dBig} + \epsilon \quad (3)$$

Where:

W = average per employee hourly wage;
dHI = presence of employee health insurance;
dP = presence of employee pension plan;
In = income of the owner from the business;
dAge = age of the business;
dInd = industry;
dCrp = non-corporate/corporate legal form;
L = labor market tightness;
dWe = 1–4 full-time employees;
dSm = 5–9 full-time employees;
dRef = 10–19 full-time employees (reference group);

dMid = 20–49 full-time employees;
dBig = 50 or more full-time employees.

Table I displays the expected outcomes. A “+” signifies an expected positive relationship; a “–” signifies an expected negative relationship; a “○” signifies uncertainty in the expected relationship.

3.9. The statistical methods – OLS and logistic regression

The “wage” dependent variable is ordinal. The appropriate statistical technique to use with the ordinal wage dependent variable and the six independent variables is ordinary least squares (OLS). In contrast, the health insurance and pension dependent variables are binary. They represent the choices of small business owners to either provide or not provide employee health insurance (sponsor an employee pension plan). Logistic regression is the appropriate statistical technique in these instances.

A mixture of ordinary least squares and logistic regression in assessing the three dependent variables makes a comparison of the relative importance of their explanatory variables awkward. The author, therefore, uses dummies for the provision of health insurance and the sponsorship of a pension plan dependent variables in ordinary least squares regressions.¹¹ The results from these regressions are presented in the paper’s exhibits. Comparisons of the betas (standardized coefficients) can, therefore, be made to ascertain relative importance of the independent variables. Logistic

regressions were also conducted for purposes of orthodoxy and showed no difference in results.¹² Statistics from the logistic regressions are available from the author.

4. Results and discussion

Table II presents the relationships between wages paid in small businesses and various characteristics of the employing business and its owner. The data in the exhibit confirm the central hypothesized relationship between employee wages and owner income, but they are not so kind to the other anticipated outcomes. Owner income from the business, as expected, is strongly associated with employee wages/salaries. In fact, the income variable’s standardized coefficient (beta) is three times as large as the coefficient of the second most strongly related independent variable, industry. Though the strong tie between owner income from the business and employee wages does not attribute causality, businessmen and women would argue that the association shows that the more money the owner earns from the business, the more money employees are paid. Organized labor would argue that the sequence is the reverse.

The data also reaffirm the known relationship between wages and industries. Table II shows that wages are higher in some industries than they are in others even when controlling for other likely influences. The most commonly tested “other” influence is human capital, information not contained in this data set. Elsewhere, human

TABLE I
Summary of hypothesized outcomes of selected explanatory variables for small business wages paid, health insurance provided and pension plans sponsored

Independent variables	Dependent variables		
	Employee wages (higher)	Employee health insurance (presence)	Employee pension plans (presence)
Owner income (higher)	+	+	+
Age of Business (older)	○	+	+
Industry (higher wages)	+	+	+
Legal form (C-corp)	○	+	+
Size of business (larger)	○	+	+
Labor market tightness (higher unempl. rate)	–	–	–

TABLE II
Wages paid, health insurance provided and pension plans sponsored by selected characteristic of the business and owner

Independent variables	Dependent variables					
	Employee wages (higher)		Employee health insurance (presence)		Employee pension plans (presence)	
	β	t	β	t	β	t
Owner Income (higher)	0.346	11.678****	0.163	5.661****	0.304	10.944****
Age of business (older)	-0.019	-0.714	0.055	2.098**	0.031	1.234
Industry (higher wages)	0.118	4.308****	0.043	1.618	0.114	4.418****
Legal form (C-corp)	0.108	3.900****	0.177	6.527****	0.078	3.007***
Size of business						
1-4 employees	0.129	3.034***	-0.220	-5.292****	-0.135	-3.368****
5-9 employees	0.034	0.900	-0.072	-1.042*	-0.064	-1.791*
10-19 employees	-	-	-	-	-	-
20-49 employees	-0.006	-0.175	0.006	0.201	0.072	2.409**
50+ employees	-0.029	-0.980	0.007	0.225	0.054	1.887*
Labor market tightness (higher unempl. rate)	0.040	1.528	-0.020	-0.775	-0.049	-1.975**
<i>Statistics</i>						
R^2		0.150		0.187		0.246
Adj R^2		0.153		0.168		0.227
SEE		4.784		0.447		0.423
F		25.248		28.561		42.785
n		1264		1285		1282

**** significant at the 0.001 level; *** significant at the 0.010 level; ** significant at the 0.050 level;

* significant at the 0.100 level.

capital has not been able to “wash out” industry effects (e.g., Brown and Medoff, 1989). That would appear indirectly reaffirmed here to the extent that owner income is a proxy for productivity and productivity is a function of human capital.

The statistical relationship of the business size dummies to employee wages is virtually non-existent. Only the smallest (1-4 employees) category is statistically different from the 10-19 employee reference group. Further, instead of a negative sign as expected, a positive sign appears. In other words, other factors equal, wages are higher in 1-4 employee businesses than they are in 10-19 employee firms. The three remaining employee size categories (5-9, 20-49, and 50+) are not statistically different from the reference group and all of the signs are in the *unexpected* direction. The two smallest size groups have positive signs (suggesting better wages than the reference group) while the two largest have

negative signs (suggesting lower wages than the reference group). These results indicate that all sized firms, within the under 100 employee size group and excepting the 1-4s, pay similar wages, other factors equal. It should be noted that the relationship involves wages exclusively. Subsequent models show that firm size is tied to health insurance and pensions – other forms of compensation – though not in a linear fashion.

Business age in Table II is not significantly associated with employee wages. These data do not support the proposition that employees systematically are willing to take less compensation in a new business gambling that they will be “big winners” if the business does well. (The negative sign in the coefficient is curious, however.) Younger firms appear to be operating in a competitive labor market which neither favors nor discriminates against them in terms of unit wage costs. It is possible that five years is too long for a business to retain the mantle of newness. One

year or two years might be preferable to test, but the number of these firms in the sample did not permit reformulation of the dummy and a further test.

Table II also indicates that C-corporations pay higher wages, other factors equal, than do other legal forms of business. The reason is not obvious. However, the income variable only addresses repatriated income and not retained earnings in C-corporations. While the incentive for the owners of small C-corporations is to leave as little profit in the business as possible (thereby avoiding double taxation), many do not for business reasons. Hence the corporate status relationship to wages may disguise retained earnings and understate the profitability/wages relationship.

The unemployment rate of the state in which the business is located is used as a proxy for labor market tightness. However, the proxy is not significant in the wage model. Nor will the labor market proxy be significant in the health insurance model that follows. One potential difficulty with the proxy is associated with the local markets in which most small businesses operate. A state measure, like the unemployment rate, averages important local differences. At the time of the survey, McAllen, Texas, had an unemployment rate of 14.0 percent, for example, while Austin had one of 2.3 percent; Fresno, California, had an unemployment rate of 13.2 percent while Orange County and San Francisco had one of 2.7 percent (U.S. Department of Labor, 1998). The value of the state unemployment rate as a measure of labor market tightness in the small business sector must, therefore, be questioned.

4.1. *Health insurance*

The independent variables hypothesized to be positively related to the provision of employee health insurance produce the expected results (Table II) and reinforce existing impressions of the current small business health insurance market and the owner's capacity/willingness to provide employee coverage. Business income is associated with the provision of employee health insurance. However, as is shown elsewhere, income is less predictive in the health insurance model than it is in the wages or pensions models. The difference indicates the relatively (compared to wages and

pensions) greater impact of other factors in decisions to provide health insurance than the other major components of compensation.

The corporate form has about the same explanatory power as income. Businesses taxed as corporations are far more likely to offer health insurance than are those taxed as individuals. This result supports previous research and proponents of health insurance deductibility for the self-employed.

The importance of both the income and legal form of business variables back the small business owners' contention that they do not provide employee health insurance because they cannot afford it. Given that small business owners customarily pay more than \$5,000 per employee (family policy), weak or inconsistent (not measured in this data set) earnings mean that the marginal productivity of employees is insufficient to finance a health insurance benefit. The lack of health insurance tax deductibility for owners taxed as individuals simply exacerbates the problem for the owners affected. The outcome is to raise the cost of health insurance for these tax-disadvantaged owners absolutely and to raise it relatively compared to owners of C-corporations.

The size of business outcome is particularly curious. The greatest explanatory power in the health insurance model rests in the 1–4 employee size dummy. The relatively large, negative coefficient attached to the variable suggests that the smallest firms are highly unlikely to provide employee health insurance compared to the 10–19 employee group, other factors equal. The 5–9 employee group also carries a negative sign, though its coefficient is much smaller. Meanwhile, the 20–49 employee group and the 50+ employee group are not significantly different from the reference category (but they do have positive signs).

Business size is associated with owner income and owner income is contained in the model. That means the that size of firm\health insurance relationship must be explained by something other than the greater profitability of larger, small businesses. The prime candidate as an explanation is relative cost. Relative costs can be anything from premium related costs, e.g., insurance company marketing costs, to small business search costs for a health plan or plan administration. The data suggest that these relative cost problems are severe

for the under 10 employee firm. However, they do not show the problem growing progressively by size of firm once past the 10 employee threshold despite positive signs for the 20–49 employee and the 50+ employee groups relative to the 10–19 employee category. It should be recognized that these comparisons are only applicable among small firms and say nothing about any differential between large and small.

Both business age and industry are associated in the expected direction with the provision of employee health insurance. More mature firms, those over five years of age, are more likely to offer health insurance, other factors equal, than are those under five. The result is expected given that health insurance is usually unavailable for a business in its first year or two due to adverse selection. Insurers want to be certain that a business has not been established to provide health insurance for a group of poor risks. Further, many owners start their businesses with a modest investment (differing from earnings) and considerable sweat equity. They have neither the time to search for health insurance nor the cash resources to pay the fixed up-front premium costs.

4.2. Pensions

With the exception of business age, all of the independent variables employed in this paper are statistically related to small business sponsorship of employee pensions (Table II). Business age has no relationship to the provision of the pension benefit, other factors equal. The reason for the lack of an association is not obvious.

In contrast to the health insurance model where legal status and the smallest business size provided explanatory power similar to owner income, owner income is far and away the best explanatory variable in the pension model. In fact, income carries two to three times the explanatory power of the next most related variables, 1–4 employee size and industry. To the extent that owner income represents the financial (in)capacity to sponsor a pension plan and business size represents the per employee differential costs of sponsoring one, the relative explanatory power of the two variables indicates that financial (in)capacity is the principal reason for the low frequency of pension plans in small businesses.

Note in Exhibit II that small firms become progressively more likely to sponsor an employee pension plan until they reach 20 employees, other factors – including owner income – equal. The 20–49 and 50+ groups are similar, but have positive signs. In contrast, the 1–4 and 5–9 groups both have negative signs with the 1–4 having the much larger coefficient. Several years ago, business size probably would have been the single most important factor in the model given the dominance of the defined benefit plans and ERISA-associated problems. With the rise of defined contribution plans and legislative efforts to simplify qualification for instituting a plan, it is likely that the relative position of the two explanatory variables (income and firm size) will diverge with financial (in)capacity increasing and differential costs decreasing.

The dummy variable for better paid industries appears again as significant and positive, reaffirming the proposition that employees in better paying industries also receive more benefits, other factors equal. Further, C-corporations are more likely to provide a plan than other business forms. The immediate reaction to this result is that the more frequent sponsorship of C-corporations might be associated with liability questions since owner income and business size, i.e., relative cost, have been controlled. But, the owners of S-corporations, enjoying legal protections as do C-corporations, exhibited a similar propensity to provide pension plans as did non-corporate businesses. The lack of an obvious reason leads to earlier speculation regarding retained earnings and C-corporations (see p. 257).

The state unemployment measure, i.e., the proxy for labor market tightness, is significant in the pension model for the only time in the paper. The result of the measure produces the expected sign, meaning that the lower the unemployment rate, the more frequent the small business sponsorship of a pension plan. But, it is not clear why the labor market tightness variable is significant in the pension model, though not in the wage or health insurance models. If, as previously suggested, the measure is flawed due to the size of small business labor markets, then the measure should remain flawed through the pension model as well. One possibility is that the increased use of defined contribution plans means that intro-

ducing a pension plan may be cheaper than health insurance. In addition, employee vesting may mean that the full cost of the benefit does not fall until an employee has proven himself rather than the more limited period that a new employee must wait before health insurance coverage. Pensions, therefore, may be the favored financial response by small employers to a tight labor market. Further, the provision of health insurance has intervening factors such as coverage from another adult in the household which may not result in a direct tie between a tight labor market and a demand for health insurance. The mystery is that the positive correlation appears between labor market tightness and pensions rather than labor market tightness and wages.

5. Conclusions

Owner income from a small business is correlated with the level of wages the business pays, the likelihood the owner provides employee health insurance, and the likelihood he sponsors an employee pension plan. Most importantly, these relationships indicate that the business's owner and the business's employees are in the venture together. They jointly prosper or they jointly fail. If the owner does relatively well, average wages are relatively high and the likelihood of health insurance and a pension plan rise notably. The opposite is also true.

The match of relatively poor employer income with relatively poor employee wages and benefits (and vice versa) cast serious doubts on the wisdom of redistribution strategies channeled through the employment relationship. Such strategies simply transfer (or attempt to transfer) income from one group to another group with relatively similar earnings. There are, of course, cases where the match of relative income among employers and employees do not appear. They are the exceptions, but even many of those fail to redistribute in the intended manner. Where a relatively low earning business (owner) must transfer income to a relatively high earning employee, the result is wealth concentration. Only in instances where a relatively high earning business (owner) must transfer income to relatively low earning employees does the intended redistribution occur. Redistribution through the employment relationship, at least in

small businesses, is, therefore, frustrated due to the existing match of relatively wealthy employers and relatively wealthy employees, and relatively poor employers and relatively poor employees.

Current income relationships make it highly unlikely that universal health insurance or pension coverage can be achieved through the employment relationship without significant subsidies and/or more efficient market mechanisms, e.g., larger group health insurance purchases. Many businesses generate little or highly irregular income for their owners. Increases in owner income and/or reductions in health insurance and pension costs are preconditions for owners to institute plans. Even then major issues such as employee preferences for wages over health insurance or pensions must be addressed.

Lowering costs through tax incentives, pooling arrangements, etc., to encourage more small business owners to provide better wages and benefits has merit. It also has limits beyond the business income constraints noted above. Andrews (1989), for example, discussed a variety of pension proposals and their impact on the capacity of smaller firms to provide a plan. But, she carefully noted that the small business pensions are just one part of a larger system of retirement income. Resources channeled to expansion of small business employee pensions (or benefits in general) are not available for other, perhaps higher priority, purposes. Limited resources, in turn, suggest a priority on efforts to reduce administrative costs/hassles for small business owners and to promote more efficient markets.

The measured, objective relationship between owner income from the business and the level and types of employee compensation also indicates that small business owners are telling researchers the truth when they say that they do not provide a certain benefit or wage level because they cannot afford it. While examples to the contrary can be found, the affordability response is not a mere rationalization. It reflects modest income from businesses in environments that are likely to be highly competitive. It also reflects the relative cost side of the affordability question. Thus, the "affordability" response for a small business owner may be based on modest profitability, high relative cost, or both.

This paper's finding that the relationship

between firm size and wages dissolves when controlling for the owner's business income places a novel perspective on a rather old question. It should be restated that the data set employed for this analysis only includes smaller firms. The results, therefore, do not bear directly on the reason for the differential in wages between small and large businesses. But they do support the idea of greater productivity as its cause. More productive firms are more profitable firms. And, as has been demonstrated, more profitable firms pay higher wages. The importance of the firm size variable appears in the health insurance and pension models. There, firm size and benefit relationships suggest relatively larger firms find it easier to provide the two employee benefits. The "bend point" for health insurance appears around 10 employees and for pensions around 20. Above these "bend points," economies appear to ebb – at least within the small business population.

Owner income is tied most strongly to wages and least strongly to health insurance. The pension relationship, in the middle, appears more like wages than the health benefit. The income variable in both the wage and pension models dominates all variables while it is only among the more important in the health insurance model. This observation leads to the obvious question: why should wages and pensions be so much more sensitive to income than health insurance? There are several possible explanations. For example, health insurance may not be an inducement compared to wages and portable pension benefits for employee populations covered elsewhere; health insurance may require a relatively inflexible fixed cost (inability to control costs) compared to other forms of compensation – even with premium-sharing arrangements; health insurance search and administrative costs for the employer may be disproportionately high. Yet, in the end one is left to speculate over a series of unspecified variables ranging from the composition of the labor force including employee preferences to the consistency of owner income across time.

Developing the relationship between owner income from the business and various forms of employee compensation is unusual, but warranted. The research focus has been on associated employee (labor) productivity questions. While

related, owner income from the business and labor productivity are not identical and have different meanings for different audiences. The relevance of the owner income variable is that it directly addresses a potent implicit assumption held by the public and their elected representatives. Thus, the owner income/employee compensation relationships established in this paper have meaning and relevance to the broad community and hence to policy debate. "Marginal labor productivity" doesn't ring with this audience. Further, owner income from the business in the sense used here is not directly relevant to publicly-traded companies or even privately-owned businesses operated by professional managers. This raises the question of whether the phenomenon documented in this paper lies in smaller firms exclusively or whether it varies by size, ownership structure, and/or agency relationships.

This inquiry should be replicated with a better, more representative data set. While the data set used here is unique because it contains data on owner income from the business and wages paid, health insurance provided and pension plans sponsored, the inclusion of more potential explanatory variables would have been valuable. The most obvious are measures of labor quality, perhaps average education and/or years of employee tenure. Another is a localized geographic measure not only to capture the tightness of local labor markets, but to capture urban-rural wage disparities. The consistency of owner earnings could also make an important contribution. Unfortunately, inclusion of all potentially important variables requires construction of a special data set, one that is not likely to be available soon.

Notes

¹ Rice et al. (1998), determined that between 1989 and 1996, the only coverage change in firms employing fewer than 200 employees was an eight percentage point increase in the 3–9 employee category. Gable et al. (1999), found that the frequency of offered coverage declined notably between 1996 and 1998, particularly among firms employing fewer than 25 people. Jensen and Morrissey (1998) saw no change in the frequency of coverage offered by firms employing fewer than 50 between 1993 and 1995. While the proportion of firms extending coverage is reasonably stable, the proportion of people covered appears to be declining.

² A recent poll of employees conducted by The Gallup

Organization for *INC.* magazine indicates that small business employees are also generally happier with their jobs than are employees of larger firms (Hopkins and Seglin, 1997). Economists challenge, but do not necessarily disregard, attitudinal measures of job satisfaction as a relevant variable (see Freeman, 1989, Chapter 14). Avoiding attitudinal measures, Kalleberg and Van Buren (1996) conclude that employees have greater autonomy in small firms than in large.

³ The seven include: product market characteristics, labor market characteristics, relations between the organization and its institutional environment, structure of the organization, unionization, job characteristics, and quality of the labor force.

⁴ Haber, for example, concludes that a dual labor market appears to exist with respect to fringe benefits, i.e., sick leave, health insurance, and pension plans.

⁵ The author is aware of no similar data regarding wage rates, though there is no reason to believe that the answer would vary.

⁶ The weights reflect the population of under 500 employee firms (excluding "0" employee firms). The distribution is: 1–4 employees, 54.9%; 5–9 employees, 21.0%; 10–19 employees, 12.4%; 20–49 employees, 7.1%; 50–99 employees, 3.0%, and 100+ employees, 1.6% (U.S. Small Business Administration).

⁷ The solution is $W_f = 2.5/((\%f + 1.5)/W_a)$ where W_f is the wage of full-time employees, $\%f$ is the percent of full-time employees in the labor force and W_a is the average wage of all employees. A check to validate the new estimate of wages for full-time workers shows that the percentage of full-time workers is no longer related to wages (as was expected).

⁸ The first step to assess the impact of non-respondents is to examine the distribution of wages and benefits among employers who responded to the income question and employers who did not. Respondents to the income question provide employee health insurance by a 62 percent/37 percent margin with one percent not answering. Non-respondents provide insurance by a 52 percent/42 percent margin with six percent not answering. Respondents to the income question do not sponsor employee pension plans by a 39 percent/59 percent; two percent did not answer. Non-respondents provided a 27 percent/66 percent margin; seven percent did not answer. The distribution of wages paid between the two groups of small business owners is similar, however.

Differences in the frequency of benefits provided occur between the two groups of owners, though none appears among wages paid. Respondents to the income question are more likely to provide the two employee benefits under discussion by about 10 percentage points. The difference is not huge, but suggests that without countervailing evidence any positive relationship established between income and health and pension benefits will be exaggerated.

The second step to assess the impact of non-respondents is to compare other characteristics of respondents and non-respondents that may reveal something about their income. The most obvious of these is firm size. The size variable is potentially important because on a bivariate basis the amount of wages paid and the frequency of benefits provided is directly associated with the number of employees in a business. Such an evaluation shows that firms in the 1–4

employee size category are less likely to provide responses to the income question than is the remainder of the population. However, the difference is small. A second variable is legal form of business. Those owning proprietorships and partnerships responded to the question less frequently (67 percent) than did owners of S- and C-corporations (75 percent). Owners using the latter two forms of organization owned more profitable businesses. Both comparisons indicate that those drawing more from their businesses were somewhat more likely were to respond. These data suggest that any relationship between owner income and employee compensation is understated.

⁹ Another 100+ cases were dropped due to the lack of data regarding full-time employees in the labor force.

¹⁰ The relationship between owner income and employee wages, health insurance and pensions is significant as is the relationship between owner income and each of the three components of compensation. The results follow:

$$\ln = 3.912 + 0.116W + 0.552dHI + 1.589dP$$

$$(24.411) \quad (10.032) \quad (4.347) \quad (12.253)$$

$$R^2 = 0.255$$

$$\text{Adj } R^2 = 0.253$$

$$\text{SEE} = 2.05$$

$$F = 142.280$$

$$n = 1254$$

Where:

$\ln$ = income of the owner from the business

W = average per employee hourly wage

dHI = presence of employee health insurance

dP = presence of employee pension plan

¹¹ Since wages, health insurance and pensions are all components of compensation, the amount an employer spends on any one of the three is limited by the amount spent on the other two. These components of compensation effectively substitute for one another within the constraint of the total compensation that a business can pay. The methodological issue arising from this relationship is constrained estimation. The issue arises because certain "y" values of individual components are "limited" by the value of total compensation. Limits alter the relationships in the model and provide a poorer estimate than would otherwise be the case.

This methodological issue is difficult to address in the current context. The wage data are ordinal, but the health insurance and pension data are binary (nominal) meaning the three are not directly additive. Further, small business owners provide other forms of compensation not available from the data set. The most common of these, offered to full-time employees by virtually every firm, is paid vacations (U.S. Department of Labor, 1994). As a result, a full compensation figure cannot be calculated.

One can argue that wages, health insurance and pensions constitute the bulk of compensation. Moreover, while the employer cost of health insurance and pensions are not known and are not strictly additive, the two benefits obviously increase total compensation. Compensation in those circumstances amounts to wages plus the dummies of health insurance and pensions. But not only is this a very rough measure, the inclusion of the three variables (two as depen-

dent variables and one as an independent variable) raises a multi-collinearity issue as health insurance and pensions have a reasonably high positive correlation.

Further complicating matters is the survey cap for the income variable. Since nearly 30 percent of respondents fall in the highest of eight income categories (see p. 252), a different constraint appears here as well. Since this "limit" was part of the survey design, there are no means to estimate the actual value of individual owner incomes beyond the highest category.

Due to these problems, the author chose to proceed using ordinary least squares. As a rough test, however, he entered the "remaining" two components in each of the three models as independent variables. The "remaining" components, i.e., the health and pension variables in the compensation model, the compensation and pension variables in the health model, etc., yield significant and relatively large coefficients, particularly in the health model. Nevertheless, the income variable continued to produce the largest betas in the wage and pension models, and their values were similar in the parsimonious and expanded versions. The beta of income in the health insurance model maintained its position relative to the other independent variables in the first, more parsimonious, model, but it fell by more than half in the second. The result suggests that the provision of health insurance is more impacted by the value of other forms of compensation than are either wages or pensions. Coefficients for the size of business dummies changed little in any of the three models.

¹² The results from ordinary least squares and logistic regressions are the same for all intents and purposes for both the health and pension models. In the health model, income has an Exp(B) of 1.1779 with the 95 percent confidence interval at 1.1095 and 1.2506. The Wald statistic is 28.7250. The other independent variables in the health model hold the same relative positive positions as they did in the OLS calculation.

The pension model produces a similar outcome. Income has an Exp (B) of 1.3776 with the 95 percent confidence interval at 1.2894 and 1.4717. The Wald statistic is 90.1320 in the model.

References

- Acs, Zoltan, Catherine Armington and Alicia Robb, 1998, *Measures of Job Flow Dynamics in the U.S. Economy*, Working Paper, Center for Economic Studies, Bureau of the Census, Washington, DC.
- Andrews, Emily S., 1989, *Pension Policy and Small Employers: At What Price Coverage?*, Washington, DC: Employee Benefit Research Institute.
- Belman, Dale and Erica L. Groshen, 1998, 'Is Small Beautiful for Workers?', in *Small Consolation: The Dubious Benefits of Small Business for Job Growth and Wages*, Washington, DC: Economic Policy Institute.
- Birch, David L., Anne Haggerty and William Parsons, 1996, *Who's Creating Jobs?*, Cambridge, MA: Cognetics, Inc.
- Boden, Richard J., Jr., 1997, 'Changes in Wages and Worker Attributes by Firm Size, 1983-1993', *Business Economics* (July), 37-41.
- Brown, Charles, James Hamilton and James Medoff, 1990, *Employers Large and Small*, Cambridge, MA, Harvard University Press.
- Brown, Charles and James Medoff, 1989, 'The Employer Size-Wage Effect', *Journal of Political Economy* (October), 1027-1059.
- Davis, Steven J., John Hartiwanger and Scott Schuh, 1993, *Small Business and Job Creation: Dissecting the Myth and Reassessing the Facts*, NBER Working Paper W4492, Cambridge, MA, October.
- Dennis, William J., Jr., 1985, *Small Business Employee Benefits*, Washington, DC: NFIB Research and Education Foundation.
- Dennis, William J., Jr., 1995, *Small Business and the Future of SBA, Small Business Matters*, Washington, DC: NFIB Education Foundation.
- Dunkelberg, William C. and Jonathan A. Scott, 1983, *Report on the Representativeness of the National Federation of Independent Business Sample of Small Firms in the U.S.*, Office of Advocacy, U.S. Small Business Administration, contract #SBA2A-0084-01.
- Employee Benefit Research Institute, 1994a, *Employment-Based Retirement Income Benefits: Analysis of the April 1993 Current Population Survey*, Special Report and Issue Brief Number 152, EBRI: Washington, DC, August.
- Employee Benefit Research Institute, 1994b, *Employment-Based Health Benefits: Analysis of the April 1993 Current Population Survey*, Special Report and Issue Brief Number 153, EBRI: Washington, DC, September.
- Ehrenberg, Ronald G., and Robert S. Smith, 1988, *Modern Labor Economics: Theory and Public Policy*, 3rd edition, Glenview, IL: Scott, Foresman and Company.
- Freeman, Richard B., 1989, 'Job Satisfaction as an Economic Variable', in *Labor Markets in Action: Essays in Empirical Economics*, Cambridge, MA: Harvard University Press.
- Gabel, Jon, Kimberly Hurst, Heidi Whitmore, Samantha Hawkins, Catherine Hoffman and Gail Jensen, 1999, *Health Benefits of Small Employers in 1998*, Menlo Park, CA: The Henry J. Kaiser Family Foundation, February.
- Gimeno, Javier, Timothy B. Folta, Arnold C. Cooper and Carolyn Y. Woo, 1997, 'Survival of the Fittest?: Entrepreneurial Human Capital and the Persistence of Underperforming Firms', *Administrative Science Quarterly* (December), 750-783.
- Greenwald, Matthew & Associates, 1998, *1998 Small Business Retirement Confidence Survey*, Washington, DC: Employee Benefit Research Institute, April.
- Gruber, Jonathan and James Poterba, 1994, 'Tax Incentives and the Decision to Purchase Health Insurance: Evidence from the Self-Employed', *The Quarterly Journal of Economics* (August), 701-733.
- Haber, Sheldon, 1993, *Aspects of Labor Market Turnover and the Impact of Fringe Benefits in Small and Large Firms*, Office of Advocacy, U.S. Small Business Administration, contract # SBA-3052-OA-88.
- Hall, Charles B., Jr., and John Kudor, 1990, *Small Business and Health Care: Results of a Survey*, Washington, DC: The NFIB Foundation.
- Harrison, Bennett, 1994, *Lean and Mean*, New York, NY: Basic Books.

- Hopkins, Michael and Jeffrey L. Seglin, 1997, 'Americans @ Work', *INC*. (Special Issue – The State of Small Business, May 20), 77–85.
- Idson, Todd L. and Walter Y. Oi, 1999, 'Workers Are More Productive in Large Firms', *AEA Papers and Proceedings* (May), 104–108.
- Ilg, Randy, 1996, 'The Nature of Employment Growth, 1989–95', *Monthly Labor Review* (June), 29–35.
- Jensen, Gail A. and Michael A. Morrisey, 1998, 'Managed Care and the Small-Group Market', in Michael A. Morrisey (ed.), *Managed Care & Changing Health Care Markets*, Washington, DC: The AEI Press.
- Joel Popkin and Company, 1998, *Characteristics of the Self-Employed: Tabulations From the March 1997 Current Population Survey*, prepared for the NFIB Education Foundation, Washington, DC, July.
- Jones, Del, 1998, 'Growth in Good-Paying Jobs Better than Predicted', *U.S.A. Today* (February 17).
- Kalleberg, Arne L. and Mark E. Van Buren, 1996, 'Is Bigger Better? Explaining the Relationship between Organization Size and Job Rewards', *American Sociological Review* (February), 47–62.
- Kennickell, Arthur B., Martha Starr-McCluer and Annika E. Studen, 1997, 'Family Finances in the U.S.: Recent Evidence from the Survey of Consumer Finances', *Federal Reserve Bulletin* (January), 1–24.
- Kirchhoff, Bruce A. and Patricia G. Greene, 1995, 'Response to Renewed Attacks on the Small Business Job Creation Hypothesis', in *Frontiers of Entrepreneurship Research*, Babson Park, MA: Babson College.
- Monheit, Alan C. and P. Holly Harvey, 1993, 'Sources of Health Insurance for the Self-Employed: Does Differential Taxation Make a Difference?', *Inquiry* (Fall), 293–305.
- National Federation of Independent Business, 1993, *1993 Membership Survey*, Washington, DC: NFIB.
- NFIB Education Foundation, 1999, *Internet Survey*, Washington, DC: NFIB Education Foundation.
- Nucci, Alfred R., 1999, 'The Demography of Business Closings', *Small Business Economics* (February), 25–39.
- Phillips, Bruce D. and Bruce A. Kirchhoff, 1989, 'Formation, Growth and Survival; Small Firm Dynamics in the U.S. Economy', *Journal of Business Venturing* (January), 65–74.
- Pierce, Richard, J., Jr., 1998, 'Small Is Not Beautiful: The Case Against Special Regulatory Treatment of Small Firms', *Administrative Law Review* (Summer), 537–578.
- Purcell, Patrick J., 1999, *Pension Coverage: Recent Trends and Current Policy Issues*, CRS Report for Congress, Congressional Research Service, Washington, DC, April.
- Rice, Thomas, Jon Gabel, Nadereh Pourat, Rebecka Levan, Lance J. Silbert, E. Richard Brown, Jean Kim, Kelly A. Hunt and Kimberly M. Hurst, 1998, *Trends in Job-Based Health Insurance Coverage*, Los Angeles, CA: UCLA Center for Health Policy Research, June.
- Slichter, Sumner H., 1950, 'Notes on the Structure of Wages', *Review of Economics and Statistics* (February), 80–91.
- Stevens, David W. and Julia Lane, 1998, 'Small Business Employment Dynamics Revisited', *Small Consolation: The Dubious Benefits of Small Business for Job Growth and Wages*, Washington, DC: Economic Policy Institute.
- U.S. Department of Labor, Bureau of Labor Statistics, 1994, *Employee Benefits in Small Private Establishments, 1994*, Washington, DC: Government Printing Office.
- U.S. Department of Labor, Bureau of Labor Statistics, 1995, *Employee Benefits in Medium and Large Private Establishments, 1995*, Washington, DC: Government Printing Office.
- U.S. Department of Labor, Bureau of Labor Statistics, 1998, *Employment & Earnings*, Washington, DC: Government Printing Office, various issues.
- U.S. Small Business Administration (various), *State of Small Business: A Report of the President*, Washington, DC: Government Printing Office.
- Yakoboski, Paul, Pamela Ostuw and Bill Pierron, 1999, *The 1999 Small Employer Retirement Survey: Building a Better Mousetrap Is Not Enough*, EBRI Issue Brief Number 212, Employee Benefit Research Institute, Washington, DC, August.

Copyright of Small Business Economics is the property of Springer Science & Business Media B.V.. The copyright in an individual article may be maintained by the author in certain cases. Content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.