

State Health Insurance Subsidies and the Self-Employed

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Many of the studies addressing the effectiveness of health insurance subsidies on the take-up rate of the self-employed have focused on either federal policies, such as TRA86 and OECSA, or the federal policies in combination with state policies. We are interested in isolating the effects of the state subsidy programs on take up rates. We are also interested in determining whether state health insurance subsidies have increased the probability that an individual would choose to become self-employed. Using a difference-in-difference-in-difference approach, this natural experiment isolates the effects of the state policies from the federal policy effects by comparing a group of states that subsidize the cost of health insurance with a group of similar states that have not implemented such policies. We find that a self-employed individual in the treatment states was more likely to be covered by private insurance after the state subsidized the cost of health insurance. However, we do not find that the subsidies increased the probability that an individual would choose to become self-employed.

INTRODUCTION

Two of the driving factors in the recent debate over a public health system are the number of uninsured and the high cost of health insurance. In 2009, over 50.6 million people in the U.S. were without health insurance (DeNava-Walt, Proctor, & Smith, 2009). The health insurance premium to cover an average family in 2009 was \$13,770 and \$5,049 for a single individual, as reported by the Kaiser/HRET (2010) annual survey. These unsatisfactory statistics exist in spite of policy changes over the past 20 years. During the health care debate, it was proposed that subsidies, mainly in the form of tax credits, were an effective way to decrease the percentage of the population that are uninsured and lower the cost of insurance. Before any new subsidies are implemented, it seems appropriate to determine the efficiency of previously introduced policies.

Nearly one-third of self-employed individuals have no health insurance compared to one-fifth of all workers (Fronstin, 2010). The Congressional Budget Office (2012) recently estimated that in 2016 those 30 million individuals in the United States will have no health insurance. Of these, approximately 24 million individuals will be given an exemption for things such as financial hardship. The 6 million remaining individuals will be assessed a penalty rather than purchase insurance. There is strong reason to believe self-employed individuals will choose pay the penalty because the marginal cost of paying the penalty is greater than the marginal benefit of purchasing health insurance or because they can demonstrate hardship (Auerbach, Holtzblatt, Jacobs, Minicozzi, Moomau, & White, 2010). Self-employed individuals are more tolerant of risk than employees which would reflect in a lower demand of health insurance (Shane & Trivedi, 2012).

This paper will focus specifically on the impact of state health insurance subsidies on the take up rate for privately insured self-employed. With many of the insurance programs used in the analysis offering subsidies for the purchase of private insurance, we did not include total insurance coverage rates, only the effects on the probability of being privately insured. The self-employed sector of the population is a driving force in lowering the private insurance coverage rates. In 2004, 77.9% of adults in employed families were covered as opposed to 47.9% of adults in self-employed families (Selden, 2009). A self-employed family includes the self-employed person, their spouse and other family members living in the same household. It was estimated that, using Schedule C filing as a proxy for self-employment, an increase of 5% in the number of self-employed could translate into a 1% increase in the uninsured population (Cebula, 2006).

The Tax Reform Act of 1986 (TRA86) allowed self-employed individuals to deduct 25% of the costs of health insurance from their taxable income on their federal returns. The Omnibus Consolidated and Emergency Supplement Act (OCESA) of 1998 gradually increased this deductibility, until finally in 2003, the self-employed were able to deduct 100% of their health insurance expenditures. Since these changes, some states have followed suit and implemented their own form of health insurance subsidies designed to lower the cost of health insurance for the self-employed and small businesses. Many of the current health insurance subsidy studies focus on the federal and state policies simultaneously or they only consider the effects of the federal policies. Here we present a different approach than the standard difference-in-differences approach (DID). A DID is an econometric method used when conducting a natural experimental analysis on a data set. It allows the researcher to compare a control group to a treatment group and determine if, after a given time, there exist differences in the behavior of the two groups that are not explained by other control variables. Trying to control for the effects of the federal policy changes, this paper uses a difference-in-difference-in-difference (DDD) approach in an attempt to isolate the effects of state insurance subsidies on the self-employed. The three differences are whether the person is self-employed (1), living in a state that implemented a subsidy (2) after the subsidy was implemented (3). We test the effectiveness of such state policies by addressing two research questions. First, have the state health insurance subsidies increased the likelihood that a self-employed individual will purchase health insurance? And second, have state health insurance subsidies increased the likelihood that a person will become self-employed?

LITERATURE REVIEW

HEALTH INSURANCE SUBSIDIES AND TAKE-UP RATES

The law of demand states that as the price of a good decreases (increases) the quantity demanded of that good increases (decreases). Assuming that health insurance is a normal good, then this property should hold. However, the amount by which the quantity demanded will increase depends on the price elasticity of demand. It is important for policy makers to be aware of the price elasticity of demand for health insurance when subsidizing the purchase of this good. Many studies find that the price elasticity for insurance is very low which leads to low take-up rates. However, there is no consensus on the true value of the take-up rate.

Some of the earlier work on this topic finds that health insurance demand is price elastic whereas more recent studies find the opposite. Feldstein and Friedman (1977) found a large impact of the price of insurance on the amount of insurance purchased, using simulations. Phelps (1973) estimated that the income elasticity for insurance coverage ranges from -0.4 to -0.7. If this is the case then a subsidy on the price of health insurance would dramatically increase the amount of insurance purchased. These large estimates were found and supported often in the literature and may have impacted the development of the TRA86. However, Holmer (1984) finds a price elasticity of -0.16 and believes that it is important to determine why the earlier studies find dramatically different results. He proposes that the theoretical framework for viewing this choice behavior could be Kahneman and Tversky's (1979) prospect theory as opposed to the conventional expected utility model. The previous studies used the expected utility model to explain how people made choices of health insurance plans under uncertainty and they overestimated the price elasticity, according to Holmer. More recently, Gruber and Washington (2005) estimated price elasticity closer to -0.02, which is even lower suggesting little response to changes in the price of insurance. Their study focused on employee premiums and they concluded that subsidies are not a cost effective way to increase coverage.

These elasticities measure the responsiveness of the amount of insurance purchased when the price of the insurance changes. Therefore, how low would the price have to be reduced to have a significant effect and how much would it cost to substantially decrease the number (percentage) of uninsured?

Gruber and Levitt (2000) evaluated a number of different tax policies and their potential impact on the number of uninsured. They conclude that even the most effective tax policy they evaluated would cost about \$40 billion per year and would only cover about 30% of the uninsured. This is similar to the conclusion of Blumberg, Nichols, and Bantnin (2001) that subsidies will have to be very large to induce uninsured workers to purchase insurance. Other studies have actually tried to estimate the effects of specific subsidy programs on the take-up of health insurance. Long and Marquis (2002) found that decreasing insurance premiums to only \$10 would have a small impact and one-third of eligible adults would still remain uninsured. They used a conditional logit model to explain the choice of health insurance status including the existence of subsidies and public health insurance options. It was interesting that over 37% of the individuals below the poverty line were not aware of the public options that were available to them. Marquis, Buntin, Escace, Kapur, and Yegian (2004) showed that a 50% subsidy would only reduce the number of uninsured by 4-8%, specifically focusing on the impact of a state subsidy package in California. Auerbach and Ohri (2006) suggested that a 50% subsidy would only increase the purchased coverage by 4.4%. This study specifically focused on non-group health insurance.

Around 30% of the uninsured in 2009 had a household income of less than \$25,000 (DeNava-Walt, Proctor, & Smith, 2009). Given this information, the behavior of low income households in response to a subsidy is important. Thomas (1994) suggested that a person's income must rise above 125% of the poverty line before the family is likely to purchase insurance. Thomas concluded that only families above the poverty line would be likely to purchase health insurance. This could be a result of public programs that are available and act as substitutes for private insurance, such as Medicaid. Therefore, many of the studies suggested that investing tax money in subsidizing health insurance would have a very small impact in the likelihood that an individual will decide to purchase insurance. However, policy makers continue to push for tax credit and deductions to cover the cost of insurance at both the federal and state levels.

HEALTH INSURANCE AND SELF-EMPLOYMENT

The previous studies reviewed here did not focus specifically on the impact of the health insurance subsidies on the self-employed but the effects of health insurance subsidies in general. Using CPS data and employing a DID approach, Gruber and Poterba (1994) took a closer look at the evidence from the self-employed and conclude that the self-employed are extremely responsive to the cost of health insurance. They suggested that a 1% increase in the cost of insurance coverage reduces the probability that a self-employed household will insure by 1.8%. You would assume that if the self-employed are this responsive to a price increase then they will be just as responsiveness to a price decrease. If this is not necessarily the case then it lends support to the prospect theory view for the purchase of health insurance by the self-employed.

The question of the effects of the subsidy on the behavior of the self-employed is difficult to answer because studies find differing results. Heim and Lurie's (2009) results suggested that changing the price of insurance had a moderate effect on the number of self-employed individuals who purchase insurance and the amount of insurance that they purchase, estimating a take-up rate of about -0.3. A much higher elasticity was estimated by Selden (2009), -1.9, which leads us to believe that an increase in tax subsidies will increase the coverage among the self-employed significantly. He simulated that the federal and state increases in subsidies after 1996 increased the number of self-employed with private coverage in 2004 by 1.1 million persons. With the recent increases in insurance premiums, subsidies have to at least increase by the same amount to be effective in reducing the after tax price of health insurance for the self-employed. On the other hand, Gumus and Regan (2009) concluded that the self-employed respond very little to reductions in the cost of health insurance.

Besides the take-up rate, it is important to identify whether such subsidies will entice potential self-employed individuals to start their own business. After examining the impacts of the TRA86 and the Omnibus Reconciliation Act of 1993 (OBRA93), Moore (2003) found that the reforms (including subsidies) had no significant effect on the decision to become self-employed. The self-employed have a significant impact on the percentage of persons not covered by health insurance (Cebula, 2006). With that being said, it is important to identify whether the potential self-employed individuals would respond to incentives such as tax deductions, credit or other forms of subsidies by deciding to start their own business. Holtz-Eakin, Penrod and Rosen (1996) found insured wage-earners to be no less likely to start their own business than their uninsured counterparts.

DESCRIPTION OF SUBSIDY PROGRAMS

Not every state has implemented subsidies of health insurance premiums for small businesses. And no two state policies are exactly alike. Among some of the policy differences are the sizes of small businesses that are eligible to receive the subsidy, employee income restrictions, level of the subsidy, date of implementation, minimum employee participation, and required employer contribution. Table 1 presents some information on the general restrictions and inclusions for each state with subsidies that were included in our analysis.

In the Health Insurance Premium Tax Credit program (Arizona), for a small business to be eligible to receive the subsidy, they must have: had 2-25 full-time employees during the last year, not offered health insurance for the previous six months, been operating in Arizona for the past year (Health Insurance Premium Tax Credit , 2010). Also, small businesses can participate in the program for a maximum of three years and can only change insurance providers on the day of annual renewal. The Insurance Coverage Affordability and Relief to small Employers (ICARE) in Kentucky began in 2007. As of now, they are not accepting new applications but are accepting renewals. Maine's DirigoChoice plan of 2008 offers programs to small businesses with 2-50 employees and also has an option for sole proprietors. Maine offers three different plans for its enrollees that have different deductibles but the benefits are the same.

The proponents for the Working Families and Small Business Health Coverage Act of Maryland hope that over 100,000 uninsured will gain coverage. To be eligible a small business must have only 2-9 full-time employees, have average wages below \$50,000 and have not offered insurance to their employees for the past 12 months (Working Families & Small Business Health Coverage Act, 2010). The self-employed in Massachusetts have to meet certain eligibility requirements to be covered by the Insurance Partnership including but not limited to: be between the age of 19-64, live in Massachusetts, have a family income that is no more than the standard income and, of course, be self-employed (Insurance Partnership for Employees, 2010). Insure Montana is a state funded program that can assist small business owners in two ways. One is through the Purchasing Pool Program (for businesses who do not currently offer a group plan) and the other is through the Tax Credit Program (for businesses who do not currently offer coverage) (Insure Montana, 2010).

The State Coverage Insurance program in New Mexico covers small businesses with 50 or less employees and this includes the self-employed. The annual benefits are capped at \$100,000 and are targeted towards the uninsured (State Coverage Insurance Frequently Asked Questions , 2010). Finally, CoverTN is a low-cost coverage plan for small businesses and individuals in Tennessee. Employers must: be located in Tennessee, have 50 or fewer full-time employees with 50% of them earning less than \$55,000 per year, pay one third of the premium, and have not offered coverage in the past six months (CoverTN Eligibility, 2010).

As motivated by this literature, the current study intends to address two research questions. First, have the state health insurance subsidies increased the likelihood that a self-employed individual will purchase health insurance? And second, have state health insurance subsidies increased the likelihood that a person will become self-employed?

DATA

The data is from the 2002 and 2009 Current Population Survey (CPS), with 2002 representing the before policy year and 2009 representing the after policy year. The CPS is the primary data set, collected by the U.S. government, used first and foremost for labor research. It is useful for studies that would try to determine the effects of different factors on wages and unemployment rates. The data is collected monthly for some households and there are different supplements throughout the year that ask a wide variety of questions. For example, the March Supplement asks Health Insurance related questions, which is what was used for this study. The data is collected for each individual in the household but the labor data is only collected for those above 15 years or older (Technical Documentation Current Population Survey, 2009). The disabled and those not between the ages of 19 and 64 were dropped from the sample.

To answer the two questions of interest, we exploit a natural experiment. The treatment group consists of states that have implemented a subsidy for the purchase of health insurance by small businesses or the self-employed. These states are Arizona, Kentucky, Maine, New Mexico, Maryland, Massachusetts, Montana and Tennessee. The control group consists of states that have not implemented such policies but are similar to the treatment states with regards to their median income and industry mix. The control states for each treatment state, respectively, are Colorado, West Virginia, Ohio, Nevada, New Jersey, Rhode Island, North Dakota and Alabama.

Table 1. *Health Insurance Subsidy Characteristics by State*

State	Name of Program	Size of employer	Year Started	Level of subsidy
Arizona	Health Insurance Premium Tax Credit	2-25 eligible employees	2006	Lesser of: \$1,000 for each employee (single coverage);
Kentucky	ICARE	2-25 eligible employees	2007	\$3,000 for each employee (family coverage); or 50% of annual premium \$40 per employee/month; Employee with a high-cost condition - \$60/month
Maine	Dirigo Choice	2-50 eligible employees	2008	Premium discounts and cost-sharing reductions
Maryland	Working Families and Small Business Health Coverage Act	2-9 eligible employees	2008	Lesser of: \$2,000 for each employee; or 50% of the premium
Massachusetts	Insurance Partnership	2-50 eligible employees	2008	\$33.33/month (individual); \$66.66/month (couple or one adult/one child); \$83.33/month (family)
Montana	Insure Montana	2-9 eligible employees	2005	Premium assistance
New Mexico	State Coverage Insurance (SCI)	1-50 eligible employees	2005	Employers pay \$75, and enrollees pay up to \$35 depending on income
Tennessee	CoverTN	1-50 eligible employees	2008	Premium discounts

RESEARCH METHODOLOGY

A difference-in-difference-in-difference approach was used by estimating a logistic regression. The independent variable represents whether the individual purchased health insurance privately or not. The variable of interest for the DDD is the variable that interacts whether an individual is self-employed, whether an individual is from a state with a subsidy program or not and if we are looking at before or after the policy implementation.

Model (1) below was used to determine whether or not the policy was effective in increasing the probability that a self-employed individual will purchase health insurance. The variable of interest is *self_sub_after*, our DDD variable, which interacts *self_employed*, *subsidy*, and *after* multiplicatively. Model (2) was used to test whether the policy increased the probability that an individual would choose to become self-employed. The main variable of interest in this model is the DID variable, *subsidy_after*, which interacts *-subsidy* and *after* multiplicatively.

$$priv_ins_t = \alpha + \beta X_t + \gamma Z_t + \delta self_sub_after \quad (1)$$

X_t contains the covariates *age*, *male*, *married*, ethnicity variables (*white*, *black*, *native*, *asian*, and *hispanic*), *lninc*, occupation type variables¹ and *kids*. These covariates were included because of their impact on the choice to purchase private insurance. We would assume that individuals that are older, married, with kids and higher incomes would be more likely to purchase private health insurance. Z_t includes dummies (and all of the interaction terms) for self-employed, whether the individual was in a state that offered a subsidy or not and if we are looking at before or after the policy implementation. The coefficient δ is of the most interest. If δ is positive and statistically significant then self-employed individuals in states that have subsidized the purchase of health insurance after the start of the policy are more likely to be covered by private health insurance. The literature, as presented earlier, is undecided as to whether subsidies are effective but we assume that even if the effect is very small it will be positive and statistically significant.

$$self_employed_t = \alpha + \beta X_t + \gamma Z_t + \delta subsidy_after \quad (2)$$

Once again, X_t contains the covariates *age*, *male*, *married*, ethnicity variables (*white*, *black*, *native*, *asian*, and *hispanic*), *lninc*, occupation type variables and *kids*. Z_t includes dummies (and all of the interaction terms) for whether the individual was in a state that offered a subsidy or not and if we are looking at before or after the policy implementation. The coefficient δ is still of the most interest. If δ positive and statistically significant then the health insurance subsidies increased the probability that an individual will choose to become self-employed. We do not expect to find this to be the case due to the number of other factors and costs involved in starting your own business.

RESULTS

Table 2 in the results section gives a description of the variables used and the summary statistics. The income variable was reported as a continuous variable representing the amount of income earned in the previous year. The occupation variable was reported by choosing from one of fourteen different categories of occupations. The years of education variable was estimated using the information given in the data.

¹The occupation categories are as follows: 1) Management, business and financial occupations 2) Professional and related occupations 3) Service occupations 4) Sales and related occupations 5) Office and administrative support occupations 6) Farming, fishing and forestry occupations 7) Construction and extraction occupations 8) Installation, maintenance, and repair occupations 9) Production occupations 10) Transportation and material moving occupations 11) Armed Forces

In the sample, an individual was considered married if they reported themselves as married with civilian spouse present or married with armed forces spouse present. A person in the sample was considered self-employed if they reported themselves as self-employed incorporated or self-employed not incorporated as their class of worker. The variable representing the number of children only takes into account children that were never married and were under the age of 18 at the time of completing the survey.

Table 2. *Variable Descriptions and Summary Statistics*

Variable Name	Description	Mean	Std. Dev.
<i>Private-Insurance</i>	Dummy where if privately insured = 1 and if not = 0	.780	.414
<i>Age</i>	Age in years	40.356	11.944
<i>Male</i>	Dummy where male = 1 and female = 0	.472	.499
<i>Married</i>	Dummy where married = 1 and not = 0	.619	.486
<i>White</i>	White, Non-hispanic	.721	.448
<i>Black</i>	Black, Non-hispanic	.100	.300
<i>Native</i>	American Indian or Aleut Eskimo	.010	.102
<i>Asian</i>	Asian or Pacific Islander	.042	.201
<i>Hispanic</i>	Hispanic	.120	.325
<i>Income</i>	Annual Income from Previous Year in Dollars	\$39,096	\$49,222
<i>Education</i>	Number of years of education	13.615	2.860
<i>Kids</i>	Number of children	.914	1.123
<i>Self-employed</i>	Dummy where self-employed = 1 and not = 0	.083	.275
<i>Subsidy</i>	Dummy where if in subsidy (treatment) state = 1 and not = 0	.458	.498
<i>After</i>	Dummy where before policy (2002) = 0 and after = 1	.462	.499

Source: 2002 and 2009 Current Population Survey

The results from the logistic regression can be seen in Table 3. Of the covariates, age, gender, marital status, ethnicity, income, number of children and years of education were all statistically significant. The older the individuals were the more likely to be insured; males were less likely to be insured; married individuals were more likely to be insured; those with higher income and more years of education were more likely to be insured; and the more children you have the less likely you are to be insured. At first glance, it seemed strange that the probability of being insured would decrease with the number of children. But household expenses certainly increase with the number children and therefore, there may be less disposable income to purchase health insurance. Also, the price of health insurance increases with the size of a family and individuals may no longer be able to afford the health insurance premiums.

Table 3. *Logit Regression Results (Marginal Effects)*

VARIABLES	(1) <i>Private-Insurance</i>	(2) <i>Self-employed</i>
<i>Age</i>	0.0016*** (0.0001)	0.0034*** (0.0001)
<i>Male</i>	-0.0067* (0.0038)	0.0384*** (0.0028)
<i>Married</i>	0.1580*** (0.0044)	0.0199*** (0.0030)
<i>White</i>	0.0735*** (0.0224)	0.0199*** (0.0111)
<i>Native</i>	-0.2630*** (0.0194)	Not significant
<i>Hispanic</i>	-0.0543** (0.0085)	Not significant

<i>Ln(Income)</i>	0.0131*** (0.0006)	-0.0169*** (0.0006)
<i>Education</i>	0.0250*** (0.0007)	0.0044*** (0.0005)
<i>Kids</i>	-0.0081*** (0.0017)	0.0139*** (0.0012)
<i>Subsidy× Self-employed ×After</i>	0.0401** (0.0192)	
<i>Subsidy×After</i>	-0.0084 (0.0074)	0.0003 (0.0051)
Observations	70320	58217

Note: Standard errors in parentheses. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1

DISCUSSION

Gruber and Poterba (1994), Heim and Lurie (2009) and Selden (2009) all find that the self-employed health insurance take-up rate increases with a decrease in the price of health insurance, even though the price elasticity they find differ. Gumus and Regan (2009) find that the self-employed are not responsive to changes in the price of health insurance. In this analysis, price data is not included and actual take-up rates are not calculated. The first question of interest is *have the state health insurance subsidies increased the likelihood that a self-employed individual will purchase health insurance?* The coefficient of the DDD variable, *sub_self_after*, which interacts *self_employed*, *subsidy* and *after*, had a value of 0.0401 and was significant at the 5% level. Therefore, the probability that a self-employed individual in a state that had implemented a subsidy would be covered by private insurance increased by about 4 percentage points after the subsidies were implemented when compared to the self-employed in the control states. This finding is consistent with some of the findings in the literature but the debate of the effectiveness of subsidies will continue. Model (1) was re-estimated with a redefined dependent variable as having private insurance in your own name. The results were different. No support was found on impact of the subsidies on take up rates. This lends support to the possibility that the take up rates increased because more people became insured by their spouse's insurance plans but there is no reason to believe this was the case.

Now for the second question, *have state health insurance subsidies increased the likelihood that a person will become self-employed?* The results suggest that the subsidies were not enough to increase the probability that an individual in the treatment states after the policies would decide to become self-employed. This is not surprising. The determinants of the choice to become self-employed involve much more than the cost of health insurance. Liquidity constraints have been found to be important in the choice to become self-employed, where those with insufficient funds are less to become self-employed (Evans & Jovanovic, 1989); (Branchflower & Oswald, 1998). Also, the social environment of an individual including exposure the other family members being self-employed or a close friend deciding to become self-employed have a statistically significant effect on the choice to become self-employed (Djankov, Qian, Roland, & Zhuravskaya, 2008). If individuals are already gainfully employed in a wage-earning position then often times the non-wage benefits from that employment option encourages workers to remain. Therefore, a financial incentive that solely focuses on the cost of health insurance may not provide sufficient incentive for individuals to move from wage-earning to self-employment, which is known as job-lock. We were able to control for the demographic information but did not have the necessary data to see if controlling for the social environment would have changed the results, but we do not assume it would have changed the coefficient of interest. It is possible that the economic situation during the before policy year (2009) could have impacted the results. The relationship between unemployment rates and self-employment rates has not been well established. There are reasons for the relationship to be positive, where the labor market is not presenting viable options for employment

therefore individuals turn to self-employment. On the other hand, a negative relationship implies that as unemployment rates rise the demand for services often offered by the self-employed decreases therefore making wage-earning positions more attractive.

PRACTICAL IMPLICATIONS

Conventional economic theory leads us to believe that when health insurance is subsidized for the self-employed then more self-employed individuals will purchase health insurance. It is the goal of this paper to determine if this is the case but also to see if state health insurance subsidies have increased the likelihood that workers will choose to become self-employed. The proponents for such subsidies insist that they will decrease the number of self-employed that are uninsured and it will increase the number of potential self-employed individuals that start their own business. Also, if the goal of health policy is to decrease the percentage of uninsured in the population then concentrating part of their effort on the self-employed proves to be valuable due to the large percentage of uninsured being self-employed.

Besides reducing the percentage of uninsured, why else should we be concerned with supporting the self-employed? The self-employed sector of the population is a driving force for growth and innovation. A large percentage of the most innovative firms are small and medium sized enterprises. For this discussion, we will equate entrepreneurs with the self-employed. The study of the correlation between entrepreneurship and growth dates back to at least when Joseph Schumpeter (1934) wrote about it and discussed the relationship between entrepreneurship and capitalism, among other subjects. Entrepreneurship is now one of the recognized factors of production and determinants of economic growth. Entrepreneurs create markets, ideas, products, and employment, all of which contribute to growth. New business creation contributes to economic growth in many ways including converting ideas into new economic activities, increasing market competition, and creating a source for new employment and increased productivity (Kantis, Komori, & Ishida, 2002). Empirically, those countries that have introduced more support for entrepreneurship have experienced additional economic growth (Audretsch & Thorik, 2000). It has been argued that entrepreneurship should be included in growth theory because of its ability to incorporate human capital, knowledge externalities and increasing returns to scale (Holcombe, 1998). Therefore, it is in policymakers' best interest to create legislation that encourages growth of start-up businesses.

There are many other barriers, besides the cost of health insurance, to starting your own business including start-up costs, capital investment, payroll taxes, capital gains taxes, etc. With all of these other factors, lowering the price of health insurance may not play a major role in the decision to become self-employed. If start-up costs (and low capital gains taxes) are possible barriers to entry then researchers have asked if subsidizing (or decreasing) these costs (taxes) should encourage more self-employment. However, a capital gains tax has actually been shown to retard entrepreneurship and lead to a first-order welfare loss (Keuschnigg & Nielson, 2003). High start-up costs reduce the rate at which new businesses are started (Fonseca, Lopez-Garcia, & Pissarides, 2001). But subsidizing entry may reduce the revealed differences between less efficient and more efficient firms, which may lead to inefficient firms entering the market (Kösters, 2009).

CONCLUSION

Many of the studies addressing the effectiveness of health insurance subsidies on the take-up rate of the self-employed have focused on either federal policies, such as TRA86 and OECSA, or the federal policies in combination with state policies. This natural experiment isolates the effects of the state policies from the federal policy effects by looking at a group of states that subsidize the cost of health insurance as a treatment group and a group of similar states that have not implemented such policies as a control group. We were able to do so because there were no changes to the federal policy after 2003

and it applied to all states. We find that a self-employed individual in the treatment states after the state subsidized the cost of health insurance was more likely to be covered by private insurance. This finding adds to the debate as to whether health insurance subsidies are an effective approach to lower the amount of uninsured in the U.S. With the implementation of a public health care option, this body of research will continue to be important.

However, no support is found that the subsidies increased the probability that an individual would choose to become self-employed, which is not surprising due to the number of other factors involved in this decision. Subsidizing entry (e.g. health insurance costs) or start-up costs may cause an increase in the number of inefficient firms to enter the market. This could cause an increase in the failure rate of new businesses. However, it is hard to determine a “healthy” rate of business failure (Holtz-Eakin, 2000). A future avenue of research could determine if these types of financial incentives lead to longer periods of self-employment. During the early stages of a firm, resources and capital limitations can prohibit growth and lead to failure. It would be of interest to note if these types of subsidies reduced this resource load and lead to a better survival rate of small and micro businesses.

One weakness of this study is that the CPS data is not collected to represent the smaller U.S. states sufficiently and therefore may be underrepresented in our data. Also, this paper does not discuss any of the policy changes brought on by the recent healthcare reform. The reform increases some of the subsidies by increasing the type of deductions that can be made for health care costs for small businesses. Also, we did not have data on health status and that would have been useful in including in the covariates for explaining the purchase of health insurance. Further, the natural experiment could be compromised if the control states and the treatment states reacted differently to the recent recession. The after policy year is 2009, which is in the height of the recession.

With the recent discussions and implementations surrounding health care reform, it is important to identify how individuals respond to various incentive structures. The self-employed are a major contributor to the rate of uninsurance and the rise of health insurance costs. If insurance take-up rates remain low among the sector of the population then they become more dependent on emergency services and utilize preventative care options less frequently. This paper attempted to add a bit more clarity to this “fuzzy area” of research by determining if the self-employed are responsive to price changes in coverage options. The findings suggest that by essentially decreasing the price of coverage by offering subsidies states who implemented such programs saw an increase in the take-up rates among the self-employed. An important follow-up research study could focus on the specific aspects of the various subsidy programs had the most significant impact on this change. This information is valuable as the political discussions around health insurance coverage continue.

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