# *Chapter Three*

# *Taiwan's National Health Insurance and Preventive Care Application: A Case of Pap-smear Tests*

## 3.1. Introduction

Cervical cancer is the most common cancer, and the leading cause of death, among women in many countries. The most effective method of reducing the mortality rate from cervical cancer has been identified as the Papanicolaou (Pap) smear test (Liu et al., 1988; Koss, 1989; Abdullah and Leung, 2001; Adams et al., 2003). Through Pap smear screening, cervical cancer can be detected earlier and treated much better than other cancers and, if detected and treated early, has a cure rate between 70 per cent and 90 per cent (Cramer, 1974; Guzick, 1978; Clarke and Anderson, 1979; Sigurdesson, 1993; Cheek et al., 1999).

A variety of factors have been associated with the rates of cervical cancer screening, including socioeconomic status, the cognition of preventive care services, accessibility of medical care, and geographic locations. Women who are less educated (Chen and Chou, 1995; Wu, 2001; Nguyen, 2002), have lower incomes (Katz and Hofer, 1994; Adams et al., 2003; Wang et al., 2005), lack screening information and

have poor access to health care (Mandelblatt et al., 1999; Zambrana et al., 1999; Wu et al., 2002) are less likely to receive these tests. Also associated with a reduced likelihood of receiving the Pap smear is being elderly (≥60 years) (Chen and Chou, 1995; Mandelblatt et al., 1999).

In Taiwan, the incidence rate of cervical cancer in 2001 was 54.58 per 100,000 women, the highest of all female malignancies in Taiwan, and the mortality rate for cervical cancer was 8.56 per 100,000, making it the fifth highest cause of death from female malignancies (Taiwan Cancer Registry [in Chinese]). Despite the fact that the Pap smear program in Taiwan commenced in 1974, the initial utilization rates remained at extremely low levels between 1974 and 1978, at around 2.38 per cent. This was partly attributable to the failure amongst Taiwanese women to recognize the importance of the Pap smear test, but also due, in some part, to embarrassment and/or fear (Chou and Lai, 1993).

To further promote its use, free yearly cervical cancer screening was made available to all women aged at least 30 years old by the NHI in July 1995. Obstetric and gynecological hospitals and clinics were encouraged to sign agreements with the NHI Program for this service. By 1997, around 1,500 medical care institutions, more than 90 per cent of the eligible medical care institutions, had made such agreements with NHI. This made cervical Pap smear tests a routine at most outpatient obstetric

and gynecological clinics and hospitals (Public Health [in Chinese]). The rate of Pap smear testing jumped up from 10 per cent in 1995, after the implementation of NHI, to 30 per cent in 1998 (Health Statistics [in Chinese]).

Health insurance also plays an important role on the usage of Pap smear test (Hiatt et al., 2001; Sung et al., 2002; Carrasquillo and Pati, 2004; Rodriguez, 2005). For example, Rodriguez et al. (2005) founded that lack of health insurance coverage was the major predictor of low utilization rates for Pap smears (OR=2.89; 95% CI, 2.17-3.85). Carrasquillo and Pati (2004) suggested that lack of insurance is the most significant barriers for women to take Pap smear test. Hence, the aim of this chapter was to use two data sets to explore the factors influencing the use of Pap smear test pre-NHI and post-NHI and compare the differences. We also examine the direct and indirect effects of NHI on the application of Pap smear by pooling the 2-year data sets. Is NHI or other contributor play an important role on cervical screening test is another objective for us to explore.

The remainder of this paper is organized as follows. Section 3.2. provides a description of the data and the empirical methodology used in the chapter. This is followed in Section 3.3. by the presentation of the empirical results. Finally, a discussion of our empirical findings is provided in Section 3.4., along with the conclusions drawn from this study.

## 3.2. Methods

### 3.2.1 Database and Study Sample

Data used in this chapter were obtained from the 1992 and 1998 Taiwan Provincial Institute of Family Planning surveys on the knowledge of, attitude towards, and practice of family planning in Taiwan. These two surveys provide nationwide population estimates within Taiwan's 23 administrative districts using face-to-face interviews and multi-stage stratified systematic sampling design methods. The first survey was conducted on married women aged between 20 and 44, while the second included both married and unmarried women aged between 20 and 59. Both surveys provided detailed information about these women with regard to personal characteristics, marriage histories, pregnancy outcomes, and attitudes toward preventative care and the usage of health checks.

To compare the utilization of Pap smear screening by women between pre-NHI and post-NHI, both datasets had to be consistent. Therefore, this chapter considered only married women aged 20~44. Because the second cohort involved both married and unmarried women with a larger range of age than the first, a fewer number participants in sample would be available. In addition, owing to the cervical Pap smear test has been offered free by the NHI program only for women aged above 30

years old, excluding the female under 30 years old. In order to investigate the differences in contributors influencing the use of Pap-smear test between the pre-NHI and post-NHI period more accurate, we divide the sample into two groups: individuals below the age of 30 years and above the age of 30 years.

After excluding all missing or incomplete data, the pre-NHI sample was 11,584: individuals aged between 20~29 are 3,480 and aged above 30 are 8,104. And the post-NHI sample was 1,686: individuals aged between 20~29 and above 30 years old are 374 and 1,312 respectively.

### 3.2.2 Analytical methodology

The dependent variable, defined as the Pap smear test, was dichotomous, and was assigned a value of 1 if a participant had had the test, and 0 if not. The independent variables were classified into four categories: socio-demographic characteristics (birth experience, education, husbands' education and employment status), geographic locations (North, Center, South and East), urban/rural strata (city and village/town), and NHI coverage.

Educational attainment was divided into four categories, primary school and below (0-6 years of full-time education), junior-high school (7-9 years), senior-high school (10-12 years) and college or above ($\geq$ 13years). It should be noted that income

was an important contributor to Pap smear use but not available in the 7th KAP survey, this chapter use the employment status (employed or unemployed) as a proxy variable. The geographic locations in this chapter were stratified into four groups, living in the North, Center, South and East area. Finally, we classified the urban/rural strata into two categories, located in the city and village/town region.

Table 3-1 describes the definitions of dependent and independent variables used in this chapter.

<Table 3-1 is inserted about here>

We used the following logit model (Maddala, 2001):

$$Paptest_i^* = \beta_0 + \sum_{j=1}^{k} \beta_j x_{ij} + \varepsilon_i \qquad (3\text{-}1)$$

$Paptest_i$* is unobserved. What we observed was a dummy variable $Paptest_i$ defined by:

$$Paptest_i = \begin{cases} 1 & \text{if } Paptest_i^* > 0 \\ 0 & \text{otherwise.} \end{cases} \qquad (3\text{-}2)$$

where $\beta_0$ is a constant; $x_{ij}$ represents factors (independent variables) that might influence the decision to receive Pap smear test ; $\beta_j$ is the set of coefficients of $x_{ij}$; and $\varepsilon_i$ represents the residuals.

Thereafter, we investigated the association between the Pap-smear screening usage and all of the independent variables discussed above, by performing a multivariate logistic regression analysis. A two-sided *p*-value of $\leq 0.05$ was considered to be statistically significant. The statistical packages, SAS System for Windows (Version 8.2) and Stata (STATA Corporation, Version 9.0), were used to undertake all of the analyses in this chapter.

## 3.3. Results

### 3.3.1 Descriptive statistics of the variables

Table 3-2 summarizes the mean values for each variable. In table 3-2, we find that the rate of receiving Pap-smear test for women aged between 20~29 years old rose from 5.75 per cent before NHI to 30.48 per cent after NHI. For the women aged above 30, about 15 per cent of female reported that they had had the screening test before NHI was stared, and rise to 43.5 per cent after NHI. There were no obvious pre and post NHI differences in number of married women giving birth. In the pre-NHI sample, ranged in age between 20 and 29 years old, women graduated from senior high school educations, making up the largest group; aged between 30 and 44 years old, women had primary school educations or below is the largest group. In the

post-NHI, the largest group is graduated from senior high school educations both in 20~29 and 30~44 years old. The husband's education has the same situations with the women. Before NHI, 58%~65% of the women survey were employed; afterwards, the percentage is 65%~72%.

In both data sets, most of the participants came from Taiwan's northern area, its most developed and populated region. Only around 10 per cent of pre-NHI and 2 per cent of post-NHI respondents lived in Taiwan's sparsely populated, mountainous eastern area. The remainder lived in the central and southern regions of the island. From table 3-2, we found that living in the city areas is more than located in the village/town zones, except the group aged between 20 and 29 years old before NHI.

<Table 3-2 is inserted about here>

### 3.3.2 Characteristics of the sample with Pap smear test

Women had given birth is more likely to receive the Pap smear test than those with no birth experience, both before and after NHI. Before NHI, the higher the educational level, the more likely it would be for a married woman to receive a pap smear. After NHI, however, the relationship between education level and pap smear screen lost its obvious association. Both before and after NHI, women with more highly educated husbands were more likely to receive Pap smear tests. Both before

and after NHI, employed women were slightly more likely to undergo pap-smear screening than the unemployed women. During both study periods, women in the northern area were not obvious more likely to receive Pap smear test than those in other areas (Table 3-3). Before NHI, women living in the city regions were most likely to receive Pap smear tests, but the relationship reversed after NHI (Table 3-3).

<Table 3-3 is inserted about here>

### 3.3.3 Regression results

***Socio-demographic factors***

Whether a woman had given birth had a statistically significant influence on utilization both before and after NHI (Table 3-4). Before NHI, the three educational dummy variables were found to have a significant positive influence on utilization of Pap smear tests among women aged above 30, suggesting that higher educational level could be positively associated with utilization of Pap smear test, perhaps suggesting that more highly educated women had better knowledge of the importance of preventive care and tended to be more open to Pap smear testing than less-educated women. After NHI, differences in results regarding educational level disappeared. Moreover, the three dummy husband educational variables had a significant effect on utilization of pap smear screening both before and after NHI for women aged between

30 and 44 years old, indicating that women aged above 30 years old with more highly educated husbands were more likely to utilize Pap smear screening.

This chapter use the employment status as a proxy variable for income strata, employed (income>0), unemployed (income<0). Before NHI, women with employed were both found to have a highly significant and positive impact on utilization of Pap smear tests both with women aged 20~29 or 30~44 years old. After NHI, differences in results regarding employment status also disappeared.

***Geographic locations***

Before NHI, for almost women being from the southern and eastern areas, were significantly and negatively related to utilization of Pap smear screening. After NHI, geographical differences disappeared, indicating that location had little impact of utilization.

Urban/rural strata variable is another important contributor to cervical cancer screening for women aged above 30 years old both before and after NHI. Before NHI, living in the village/town zones were very significantly ($P<0.001$) and negatively associated with the utilization of Pap-smear testing. Nevertheless, resided in the village/town areas were more likely to utilize Pap smear screening after NHI. It implies that the free annual screening under NHI program play great contribution on the utilization of Pap smear test lived in the rural regions.

***National Health Insurance (NHI)***

Whether the implementation of NHI influenced the pattern of Pap smear test is another crucial issue. The coefficient corresponding to NHI was very significantly ($P<0.001$) and positively related to utilization of cervical cancer screening. This finding seems to suggest that the free annual screening test provided by NHI program had a significant direct effect on Pap smear utilization. However, not only women aged above 30 years old, those aged below 30 were also significantly associated with the Pap smear test usage. In addition, the degree of significance for women below 30 was higher than those aged above 30. Since women aged below 30 were not covered by NHI for free screening, there were other vital contributors other than NHI coverage that increased the utilization rate of Pap smear screening after the implementation of NHI. Nevertheless, the coefficient of the South＊NHI interaction variable for women above 30 become significant ($P<0.001$) and positive (OR 1.88). The findings suggest that NHI still had an indirect effect of reducing the disparities between the northern areas and the south. In addition, the coefficient of the village/town＊NHI interaction variable also become significant ($P<0.001$) and positive (OR 1.99), indicating that NHI also had an indirect effect of reducing the disparities between the city regions and the village/town.

## 3.4. Discussion and Conclusion

This chapter found that the factors affecting Pap smear test utilization varied significantly before and after NHI. Before NHI was implemented, women below the age of 30, some variables such as birth experience, at least college level education, employed and being a resident of a southern region significantly influenced the likelihood that a woman would receive a Pap smear test. For women over 30 years old, almost all independent variables were the important contributory factors for the utilization of Pap-smear screening. However, after NHI was started, many important factors such as geographic locations, employment status and education lost their significant influence. This finding seems to imply that NHI successfully reduced disparities in utilization of Pap smear tests.

Strikingly, the degree of significance of NHI variable on women aged below 30 years old (OR 5.55) is stronger than women aged above 30 years old (OR 2.39). This finding suggests that not only women aged above 30 but also women aged below 30 received more cervical cancer screening test after the implementation of NHI, though the NHI program only provided free yearly Pap-smear test to women aged at least 30 years old. That is, in addition to NHI program, other factors may also play important roles on affecting cervical cancer test utilization.

One major factor is that in order to encourage more of women for screening,

Taiwan government established a lot of prevention plans to reduce both the incidence and mortality rate of cervical cancer. First, strengthening educational activities, in November 1996, a series of “Pap smear test takes only six minutes of your time, and yet protects your whole life” campaigns were conducted on TVs. Secondly, much of leaflets, posters and booklets about pap-smear testing have been produced and March is made the cervical cancer control month with more extensive use of mass media for public education. Thirdly, establishing a service network for Pap-smear screening, obstetric and gynecological hospitals and clinics were encouraged to sign contract with the NHI program for government to provide free pap-smear screening from July 1995. In 1997, around 1,500 medical care institutions, more than 90 per cent of the eligible medical care institutions, are under contract. Finally, in order to balance the access of Pap-smear test utilization in different areas, mobile services are offered among remote regions. Local health bureaus also coordinate local medical care institutions and health stations to build up mobile stations for specimen collection services. These plans induced women aged below 30 to understand Pap-smear test is the most effective tool of preventing cervical cancer though the screening hasn’t been offered free for them. Thus, the utilization of Pap smear screening for women aged below 30 also increased significantly ($P<0.001$) and positively (OR 5.55). To further increase the utilization of cervical cancer screening, the insurance coverage could be

extended to all married women regardless of age.

In conclusion, NHI program did play an important role on affecting women's utilization of cervical screening. Most important of all, in order to give publicity to women to recognize the Pap smear testing is the most effective tool of preventing cervical cancer, Taiwan government also established many plans, including strengthening educational activities, establishing a service network for Pap-smear screening and so on. These strategies enhanced the accessibility and raise the opportunity of taking Pap smear test deeply.

This chapter suffers from two inherent limitations. First of all, the dataset used in this chapter comprised married women aged between 20~44 years old, didn't contain the other group and the unmarried women. Secondly, income information is not available from the KAP7 dataset, we used employment status as the proxy variable, probably not to reveal the real influence arising from income. Nevertheless, this chapter revealed that not only NHI free annual screening plays a significant factor on women's utilization of Pap smear test, the public health promotions provided by the government authorities were also as important as well. Owing to the effects of preventive health care services such as Pap smear test are not realized immediately, women often neglect the importance of receiving such preventive health care services. Therefore, to promote the health for women, government authorities can not rely only

on the NHI system. The passive free program provided by NHI is not enough. Government authorities should take the initiative in putting more efforts on the promotion of public health for women. Since the relationships between NHI and government promotion of public health are complement instead of substitute. Government authorities should not reduce efforts and funding on the promotion of public health even under a universal health insurance system. Preventive health care services such as Pap smear test are especially needed more attention and promotion in order to better protect the health of women for all.

Table 3-1：Definitions of dependent and independent variables

| Variable | Definition |
|---|---|
| **Dependent variable** | |
| Pap smear test | Dummy variable=1 if woman accept Pap smear test, other=0 |
| **Independent variables** | |
| *Socio-demographic factors* | |
| Birth experience | Dummy variable=1 if woman have birth experience, other=0 |
| Education | |
| Primary school and below | （Primary school and below is the reference category） |
| Junior high | Dummy variable=1 if woman finished Junior high school, other=0 |
| Senior high | Dummy variable=1 if woman finished Senior high school, other=0 |
| College and above | Dummy variable=1 if woman finished College and above, other=0 |
| Husband’s education | |
| Primary school and below | （Primary school and below is the reference category） |
| Junior high | Dummy variable=1 if woman finished Junior high school, other=0 |
| Senior high | Dummy variable=1 if woman finished Senior high school, other=0 |
| College and above | Dummy variable=1 if woman finished College and above, other=0 |
| Employment status | Dummy variable=1 if woman is employed, other=0 |
| *Geographic locations* | |
| North | Dummy variable=1 if the household is located in: Taipei Hsien, Keelung city, Ilan Hsien, Taoyuan Hsien, Hsinchu Hsien, Miaoli Hsien, Taipei Municipality（North is the reference category） |
| Center | Dummy variable=1 if the household is located in: Taichung Hsien, Changhwa Hsien, Nantou Hsien, Yunlin Hsien, Taichung City |
| South | Dummy variable=1 if the household is located in: Chiayi Hsien ,Tainan Hsien, Kaohsiung Hsien, Pingtung Hsien, Kaohsiung Municipality, Chiayi City, Tainan City |
| East | Dummy variable=1 if the household is located in: Taitung Hsien, Hwalien Hsien, Penghu Hsien |
| Urban/rural strata | |
| City | Dummy variable=1 if woman lives in the megalopolis, other=0 |
| Village/Town | （Woman lives in the village or town is the reference category） |
| *NHI* | Dummy variable=1 if woman under National Health Insurance (NHI) program, other=0 |

Table 3-2: Means of variables

| | Pre-NHI | | Post-NHI | | Pooling | |
|---|---|---|---|---|---|---|
| Variables | Age=20~29 N=3,480 | Age=30~44 N=8,104 | Age=20~29 N=374 | Age=30~44 N=1,312 | Age=20~29 N=3,854 | Age=30~44 N=9,416 |
| **Dependent variables** | | | | | | |
| Pap smear test | 0.0575 | 0.1512 | 0.3048 | 0.4345 | 0.0815 | 0.1906 |
| **Independent variables** | | | | | | |
| *Socio-demographic factors* | | | | | | |
| Birth experience | | | | | | |
| Yes | 0.8753 | 0.9847 | 0.7807 | 0.9642 | 0.8661 | 0.9818 |
| Education | | | | | | |
| Primary school and below | 0.1388 | 0.4767 | 0.0294 | 0.2233 | 0.1282 | 0.4414 |
| Junior high | 0.2965 | 0.1728 | 0.1417 | 0.2287 | 0.2815 | 0.1805 |
| Senior high | 0.4569 | 0.2448 | 0.6390 | 0.3658 | 0.4746 | 0.2617 |
| College and above | 0.1078 | 0.1057 | 0.1899 | 0.1822 | 0.1157 | 0.1164 |
| Husband's education | | | | | | |
| Primary school and below | 0.0945 | 0.3495 | 0.0401 | 0.1753 | 0.0893 | 0.3252 |
| Junior high | 0.3083 | 0.1857 | 0.1738 | 0.2165 | 0.2953 | 0.1900 |
| Senior high | 0.4104 | 0.2655 | 0.5134 | 0.3331 | 0.4203 | 0.2750 |
| College and above | 0.1868 | 0.1993 | 0.2727 | 0.2751 | 0.1951 | 0.2098 |
| Employment status | | | | | | |
| Employed | 0.5787 | 0.6491 | 0.6471 | 0.7149 | 0.5854 | 0.6582 |
| *Geographic locations* | | | | | | |
| North | 0.3940 | 0.4153 | 0.3690 | 0.4078 | 0.3915 | 0.4143 |
| Center | 0.2327 | 0.2063 | 0.3048 | 0.2599 | 0.2398 | 0.2138 |
| South | 0.2750 | 0.2820 | 0.2968 | 0.3194 | 0.2771 | 0.2872 |
| East | 0.0983 | 0.0964 | 0.0294 | 0.0129 | 0.0916 | 0.0847 |
| Urban/rural strata | | | | | | |
| City | 0.4779 | 0.5375 | 0.5321 | 0.5762 | 0.4831 | 0.5429 |
| Village/Town | 0.5221 | 0.4625 | 0.4679 | 0.4238 | 0.5169 | 0.4571 |
| *NHI* | 0 | 0 | 1 | 1 | 0.0970 | 0.1393 |

Table 3-3: Characteristics of sample with Pap smear test

| | Pre-NHI | | Post-NHI | | Pooling | |
|---|---|---|---|---|---|---|
| Independent variables | Age=20~29 N=3,480 | Age=30~44 N=8,104 | Age=20~29 N=374 | Age=30~44 N=1,312 | Age=20~29 N=3,854 | Age=30~44 N=9,416 |
| | % | % | % | % | % | % |
| *Socio-demographic factors* | | | | | | |
| Birth experience | | | | | | |
| Yes | 6.34 | 15.15 | 35.27 | 43.87 | 8,87 | 19.08 |
| No | 1.61 | 12.90 | 13.41 | 31.91 | 3.49 | 18.13 |
| Education | | | | | | |
| Primary school and below | 3.52 | 9.37 | 27.27 | 35.84 | 4.05 | 11.24 |
| Junior high | 4.17 | 13.71 | 33.96 | 42.67 | 5.62 | 18.82 |
| Senior high | 6.67 | 19.51 | 30.13 | 46.46 | 9.73 | 24.76 |
| College and above | 9.07 | 33.14 | 29.58 | 47.70 | 12.33 | 36.31 |
| Husband's education | | | | | | |
| Primary school and below | 3.65 | 8.30 | 13.33 | 29.57 | 4.07 | 9.90 |
| Junior high | 4.85 | 11.30 | 27.69 | 41.90 | 6.15 | 16.15 |
| Senior high | 5.25 | 16.73 | 33.33 | 47.83 | 8.58 | 21.98 |
| College and above | 9.38 | 28.48 | 29.41 | 48.20 | 12.10 | 32.09 |
| Employment status | | | | | | |
| Employed | 6.41 | 16.27 | 31.40 | 43.60 | 9.09 | 20.41 |
| Unemployed | 4.85 | 12.97 | 28.79 | 43.05 | 6.82 | 16.47 |
| *Geographic locations* | | | | | | |
| North | 6.64 | 19.67 | 31.16 | 44.30 | 8.88 | 23.05 |
| Center | 6.91 | 13.16 | 33.33 | 45.45 | 10.17 | 18.63 |
| South | 3.24 | 9.58 | 26.13 | 41.53 | 5.62 | 14.53 |
| East | 6.43 | 15.88 | 36.36 | 23.53 | 7.37 | 16.04 |
| Urban/rural strata | | | | | | |
| City | 6.98 | 18.46 | 29.15 | 42.20 | 9.34 | 21.97 |
| Village/Town | 4.62 | 11.23 | 32.00 | 45.14 | 7.03 | 15.61 |

Table 3-4: Regression results

| | Pre-NHI | | Post-NHI | | Pooling | |
|---|---|---|---|---|---|---|
| | Age=20~29 | Age=30~44 | Age=20~29 | Age=30~44 | Age=20~29 | Age=30~44 |
| Variables | Odds Ratio (P-value) | Odds Ratio (P-value) | Odds Ratio (P-value) | Odds Ratio (P-value) | Odds Ratio (P-value) | Odds Ratio (P-value) |
| Birth experience | | | | | | |
| Yes | 6.47 (＜0.0001) | 2.13 (0.006) | 4.11 (＜0.0001) | 1.95 (0.039) | 5.21 (＜0.0001) | 2.16 (＜0.0001) |
| Education | | | | | | |
| Junior high | 1.11 (0.719) | 1.25 (0.027) | 0.98 (0.978) | 1.08 (0.686) | 1.12 (0.673) | 1.25 (0.012) |
| Senior high | 1.70 (0.070) | 1.41 (0.001) | 0.77 (0.726) | 1.07 (0.712) | 1.47 (0.152) | 1.36 (＜0.0001) |
| College and above | 2.09 (0.042) | 2.14 (＜0.0001) | 0.98 (0.979) | 1.07 (0.791) | 1.81 (0.067) | 1.85 (＜0.0001) |
| Husband's education | | | | | | |
| Junior high | 1.18 (0.631) | 1.27 (0.030) | 2.32 (0.308) | 1.69 (0.008) | 1.33 (0.363) | 1.37 (0.001) |
| Senior high | 1.09 (0.797) | 1.71 (＜0.0001) | 3.62 (0.109) | 2.18 (＜0.0001) | 1.45 (0.236) | 1.79 (＜0.0001) |
| College and above | 1.87 (0.090) | 2.49 (＜0.0001) | 3.24 (0.161) | 2.35 (＜0.0001) | 2.03 (0.036) | 2.45 (＜0.0001) |
| Employment status | | | | | | |
| Employed | 1.36 (0.049) | 1.22 (0.004) | 1.25 (0.380) | 1.02 (0.862) | 1.33 (0.033) | 1.18 (0.006) |
| Geographic locations | | | | | | |
| Center | 1.24 (0.239) | 0.76 (0.002) | 1.03 (0.923) | 0.97 (0.828) | 1.24 (0.254) | 0.76 (0.002) |
| South | 0.52 (0.003) | 0.48 (＜0.0001) | 0.74 (0.320) | 0.87 (0.324) | 0.52 (0.002) | 0.48 (＜0.0001) |
| East | 1.26 (0.356) | 1.05 (0.632) | 1.49 (0.580) | 0.35 (0.078) | 1.22 (0.424) | 1.03 (0.768) |
| Urban/rural strata | | | | | | |
| Village/Town | 0.66 (0.010) | 0.76 (＜0.0001) | 1.09 (0.715) | 1.33 (0.026) | 0.65 (0.007) | 0.74 (＜0.0001) |
| NHI | | | | | 5.55 (＜0.0001) | 2.39 (＜0.0001) |
| Interaction effects | | | | | | |
| Center＊NHI | | | | | 0.85 (0.645) | 1.29 (0.152) |
| South＊NHI | | | | | 1.42 (0.341) | 1.88 (＜0.0001) |
| East＊NHI | | | | | 1.36 (0.679) | 0.34 (0.075) |
| Village/Town＊NHI | | | | | 1.72 (0.065) | 1.99 (＜0.0001) |
| Number of observation | 3,480 | 8,104 | 374 | 1,312 | 3,854 | 9,416 |
| Log-Likelihood | -722.35305 | -3193.3392 | -217.62763 | -878.87248 | -944.64607 | -4084.6649 |
| LR $X^2$ | 86.16 | 497.12 | 24.68 | 38.46 | 287.09 | 1004.48 |
| Prob＞$X^2$ | 0.00001 | 0.00001 | 0.0164 | 0.0001 | 0.00001 | 0.00001 |
| Pseudo $R^2$ | 0.0563 | 0.0722 | 0.0537 | 0.0214 | 0.1319 | 0.1095 |