

HISP Questions and Answers

HISP QUESTION 1 (chapter 3, p.58)

A. Does the before-and-after comparison control for all the factors that affect health expenditures over time?

No, it is very unlikely that this analysis controls for all the factors that may impact health expenditures over time. For example, there are other health interventions operating simultaneously in the villages receiving HISP, which could also have caused increases or decreases in health expenditures. Additionally, a financial crisis in the country could have reduced health expenditures, meaning that in the absence of HISP, households might have spent less on health.

B. Based on these results produced by the before-and-after analysis, should HISP be scaled up nationally?

No, based on these results HISP should not be scaled up nationally. The program decreased average health expenditures in poor households, but by much less than the threshold level of \$10 that was determined by the government.

HISP QUESTION 2 (chapter 3, p.61)

A. Does this analysis likely control for all the factors that determine differences in health expenditures between the two groups?

No, it is unlikely that the multivariate analysis controls for all the factors that impact health expenditures between the two groups. There may be unobservable factors that determine why some households enroll in HISP and others do not, such as personal preferences on health or the motivation of the household decision maker.

B. Based on these results produced by the enrolled-nonenrolled method, should the HISP be scaled up nationally?

Based strictly on the estimate from the multivariate linear regression, the HISP should not be scaled up nationally because it decreased health expenditures by \$ 9.98, which is less than the government-determined threshold level of \$10. However, the \$9.98 estimate is very close to \$10. In statistical terms, it is not statistically different from \$10. Therefore, you might still argue that the HISP should be expanded nationally.

HISP QUESTION 3 (chapter 4, p.85)

A. Why is the impact estimate derived using a multivariate linear regression basically unchanged when controlling for other factors, compared to the simple linear regression and comparison of means?

Because the treatment was assigned randomly, the comparison and treatment groups should have identical characteristics and be exposed to the same external factors over time. The only difference between the two groups is that the treatment group received HISP. Because of the randomized assignment process, the characteristics (controls) of the treatment and comparison group are unrelated to treatment status, so controlling for additional characteristics in the multivariate linear regression is not expected to change the estimated impact by much.

B. Based on the impact estimated with the randomized assignment method, should the HISP be scaled up nationally?

Yes, based on this result, the HISP should be scaled up nationally because it decreased health expenditures by more than the \$10 threshold level.

HISP QUESTION 4 (chapter 5, p. 109)

A. What are the key conditions required to accept the results from the randomized promotion evaluation of HISP?

There are three basic assumptions required to accept the result from the randomized promotion evaluation of HISP. First, the promoted and nonpromoted villages have the same characteristics before the HISP. This assumption holds because of the randomized assignment of promotion at the village level, and can be verified by comparing the baseline data from both groups. Second, the promotion is effective in encouraging households to enroll in the HISP. This assumption can be verified if the promoted villages have substantially higher enrollments in HISP than nonpromoted villages. Third, we assume the promotion itself does not directly affect health expenditures. This assumption usually can not be verified but is informed by theory and experience.

B. Based on these results, should HISP be scaled up nationally?

Based strictly on the estimate from the multivariate linear regression, the HISP should not be scaled up nationally because it decreased health expenditures by \$ 9.74, which is less than the government-determined threshold level of \$10. However, the \$9.74 estimate is very close to \$10. In statistical terms, it is not statistically different from \$10. Therefore, you might still argue that the HISP should be expanded nationally.

HISP QUESTION 5 (chapter 6, p. 124)

A. Is the result shown in table 6.1 valid for all eligible households?

No, the RDD estimates in Table 6.1 represent the effects for households very close to the cutoff poverty index score. Intuitively, this is the region where eligible and ineligible households have most similar characteristics and as such can be compared.

B. Compared with the impact estimated with the randomized assignment method, what does this result say about those households with a poverty index of just under 58?

This result says that households just under the poverty line have a slightly smaller reduction in health expenditures than the average eligible household (about \$1 less). Households with a poverty index just under 58 will spend on average \$9.03 less on health as a result of the HISP. This is less than the result in randomized assignment, which was an average decrease in health expenditures of \$10.

C. Based on the RDD impact estimates, should the HISP be scaled up nationally?

No, based on this result, the HISP should not be scaled up nationally because it decreased health expenditures by less than the \$10 threshold level.

HISP QUESTION 6 (chapter 7, p. 141)

A. What are the basic assumptions required to accept this result from difference-in-differences?

To accept this result, we assume that there are no differential time varying factors between the two groups other than the program. We assume that the treatment and comparison groups would have equal trends or changes in outcomes in the absence of treatment. While this assumption can't be tested in the postintervention period, we can compare trends before the intervention starts.

B. Based on the result from difference-in-differences, should HISP be scaled up nationally?

No, based on this result, the HISP should not be scaled up nationally because it has decreased health expenditures by less than the \$10 threshold level. Taking the estimated impact under random assignment as the "true" impact of the program suggests that the difference in difference estimate may be biased. In fact, in this case, using the nonenrolled households as a comparison group does not accurately represent the counterfactual trend in health expenditures.

HISP QUESTION 7 (chapter 8, p. 155)

A. What are the basic assumptions required to accept these results based on the matching method?

To accept this result, we assume that there are no unobserved differences in the two groups that can be associated with health expenditures. This assumption is necessary because you can only use observed differences when matching households in the two groups.

B. Why are the results from the matching method different if you use the full versus the limited set of explanatory variables?

There might be some variables that are excluded from the limited set of explanatory variables that do affect both participation in the program and health expenditures. Omitting these variables will bias the impact estimate.

C. What happens when you compare the results from the matching method with the result from randomized assignment? Why do you think the results are so different for matching on a limited set of explanatory variables? Why is the result more similar when matching on a full set of explanatory variables?

Randomized assignment and matching primarily differ in how the treatment is given. In randomized assignment, the HISP is randomly assigned and the impact is measured by the difference in health expenditures between the treatment and comparison groups. In matching, the HISP is not randomly assigned. A comparison group is constructed from nonenrolled households that have similar characteristics to enrolled households using matching.

When matching on a limited set of explanatory variables, the remaining unobserved differences in the matched comparison group likely account for some of these difference between the matching and the randomized assignment estimates.

When matching on a full set of explanatory variables, the difference between the matching and randomized assignment estimates tends to get smaller. However, you cannot be sure that all relevant explanatory variables are accounted for.

D. Based on the result from the matching method, should the HISP be scaled up nationally?

Based strictly on the estimate from matching on a full set of explanatory variables, the HISP should not be scaled up nationally because it decreased health expenditures by \$ 9.95, which is less than the government-determined threshold level of \$10. However, the \$9.95 estimate is very close to \$10. In statistical terms, it is not statistically different from \$10. Therefore, you might still argue that the HISP should be expanded nationally.

HISP QUESTION 8 (chapter 15, p. 279)

A. Which sample size would you recommend to estimate the impact of HISP+ on out-of-pocket health expenditures?

This answer will depend on policy priorities and available budgets. Under randomized assignment at the individual level, a total sample size of 2,688 units (1,344 in each group) would be needed to detect a \$1 decrease in out-of-pocket health expenditures with a power of 0.9. A total sample size of 672 (336 treated and 336 comparison units) would detect a change as small as \$2 in health expenditures at the 0.9 power. This would cut the required sample and related data collection costs substantially. At the same time, it would still allow detecting the impacts that would make the program effective based on the ex-ante economic analysis. As such, such a sample may be a good compromise if budgets are limited.

B. Would that sample size be sufficient to detect changes in the hospitalization rate?

A sample size of 672 would not be sufficient to detect even a 3 percent change in hospitalization rate with a power of 0.9. Much larger sample sizes (above 1,614) will be required to detect impacts on hospitalization rates.

HISP QUESTION 9 (chapter 15, p. 283)

A. Which total sample size would you recommend to estimate the impact of HISP+ on out-of-pocket health expenditures?

This answer will depend on policy priorities and available budgets. A total sample size of 630 households (with 90 villages and 7 households per village) would be appropriate for the evaluation, as this sample size would detect a change of \$2 with a power of 0.8.

B. In how many villages would you advise the minister of health to roll out HISP+?

Power is maximized when the number of treatment and control observations is the same. If a total sample of 90 villages is needed, rolling out HISP+ to 45 villages would maximize power. The other 45 villages would be comparison villages.