Stata Training (Module 4)

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1 Introduction

For a considerable amount of time, economists and policymakers have butt heads at overall healthcare costs and their interpretations. More recently, policymakers have politicized the issue, slowly modifying the truth to fit their respective political agendas. However, it is consensus, among the populace, that healthcare costs are far too expensive. Using this fact, I found a potential trend that I find more interesting - the interplay of how the presence of chronic illnesses affects current medical expenditures. Intuitively, there are a few sides to examine. On one hand, there is the fact that chronic illnesses tend to require more expensive treatments, which would drive up costs. Conversely, many individuals with a chronic illness(es) may individually choose to not receive treatment, meaning costs could be low.

2 Literature Review

Chronic illness expenditure, surprisingly, account for an extremely large share of overall medical expenditure - 90 percent according to the CDC. This implies that there is an extremely high level of correlation between having chronic illnesses and the corresponding medical expenditures that must be paid to address these illnesses. This semi-paper, however, does not aim to address costs associated with having chronic illnesses overall, but rather seeks to find how tacking on additional chronic illnesses changes total medical expenditures.

Meta-research has been done on the study of chronic illnesses. For example, Holman (2020) illuminates a general disinterest in chronic illnesses and a larger emphasis placed on new, acute illnesses in the research world. As a result, he posits that this phenomenon has created a, what he describes as, "chronic illness epidemic" where researchers and scientists alike are stuck dealing with a problem that could have potentially been solved decades ago. Now, there exists a large pool of individuals who are left helpless, cannot get care, with little information or innovation that can treat them.

Despite this fact, recent research has uncovered an interesting trend, one that this paper will substantiate. Becker (2020) concludes that the more chronic illnesses that an individual may be affected by, the more likely that same individual is to be in medical debt - that is, the more money they owe towards medical expenditures. This study will be very similar to our work. However, our main goal is to attempt to quantify this change as opposed to simply examining the probability of an individual simply having medical debt.

3 Methodology

To accomplish our goal, we will look at a data set compiled by Gregory Bruich, Ph.D. of Harvard. The data set includes information about the number of chronic illnesses and the respective medical expenditures of numerous individuals, among many other variables. We will focus on these two explicitly stated variables, run regression analysis on them, and look at certain correlative variables to attempt to deduce a relationship between chronic illnesses and medical expenditures as well as finding a quantification of this relationship. We will, simultaneously, ignore other variables like age and race (although they definitely impact medical expenditures) for the sake of finding the aggregate average affect of chronic illnesses on medical expenditures.

4 Results

Results here - I find, from correlation analysis, a moderate linear relationship (.3547) between the total number of active chronic illnesses and medical expenditures. I potential explanation for this could be that the relationship is less linear (although it definitely is increasing), and is instead more logarithmic - that is, there becomes a point where tacking on additional chronic illnesses leads to a smaller increase in additional medical expenditures since the existing costs are already so high.

Further, I find a linear relationship between active chronic illnesses and medical expenditures. It seems that even without chronic illnesses, the y-intercept (3210.064) reflects that people are paying 321006.40 dollars. When you add each additional active chronic illness, medical expenditures jump by 328513.5 dollars each illness. Note, the confidence interval for these numbers is 3208.293 to 3361.977, and these results are significant at a 0.0001 significance level.

5 Conclusion and Policy Recommendations

Based on these results, we can conclude that there is indeed a positive relationship between active chronic illnesses and medical expenditures - that is, when active chronic illnesses increase, we can expect medical expenditures to increase simultaneously. Furthermore, there seems to be a relatively linear increase in

expenditure. There are a few policy prescriptions:

a) The government could subsidize the cost of medical expenditures such that the increasing cost is less and

b) The government could work on earlier stages of innovation that address chronic illnesses so that individuals are not left with exorbitantly high costs later on.

Of course, more research needs to be done on the nature of chronic illnesses, and even more work needs to be done concerning the meta-research of why chronic illnesses have largely been ignored. Consider the current state of chronic illness neglect a product of decades of ignorance.