

Entangling the Economic impact of disease on Households in India

Umenthala Srikanth Reddy

Introduction

Worldwide there is an increase in the phenomena of health spending which is due to change in technology, demography, and change in health care services (Mohanty *et al*, 2016). Health spending as a percentage of GDP has been increasing worldwide. Overall the global health spending has been around 6 percent of GDP in 1990 which slightly increased to 7.1 percent of GDP in 2013 and is projected to increase up to 9 percent in 2040. In India the spending of total health expenditure in 2014-15 is 3.8 percent of GDP. Out of these total expenditure in India 67 percent of the expenditure comes from household out of pocket expenditure (NHA, report). Public health expenditure remained stagnant at 1 percent of GDP in India which is below than the emerging nation as BRICS and even spends lower than their neighboring countries of Nepal and Sri Lanka.

Estimates from household surveys show that, worldwide each year, around 100 million individuals are impoverished and another 150 million face severe financial difficulties due to direct health expenditure and that more than 90 percent of people affected live in low-income countries. In India the inter-state variation of health expenditure found that states with higher levels of poverty uses higher public health centers and yet they occur the higher OOOPE (Anjali Dash *et al*, 2019). Dele O Abegunde *et al* (2007) estimated that in India due to chronic disease alone \$17 billion will be lost, which accounts to GDP loss of 0.1 percent this amount will be substantial if they have considered all the chronic disease. In India a study by Anamika Pandey *et al* (2017) found the number of households facing catastrophic expenditure has increased by 1.47 folds between 1993-94 and 2011-12.

Household can respond to prime age mortality and morbidity in different ways that is either by utilizing their formal insurance, from savings, or from government grants and borrowing. If the aforementioned things don't support the consumption of the household then there is a change in the labor supply from the household or a drop out of school going children to support their families (Futoshi Yamauchi *et al*, 2008). These morbidity and mortality will affect the households in both short run and long run (Ajay Mahal *et al*, 2010; Futoshi Yamauchi *et al*, 2008). Studies by Schultz *et al* 1997, Strauss *et al* 1998 have found that there is positive effect of better health status on work productivity and less absences from work due to diseases. Strauss 1998, found that people in the poor section are likely to face more economic consequences due to bad health as their physical strength will pay off more. In analysis by Futoshi Yamauchi *et al*, (2008) in South Africa found that due to prime age mortality there is an increase in labour supply among males and females by dropping out from their schooling. Cam Maete *et al*, 2002 studies the labor force participation of elderly and their health status in Taiwan found that due to improvement in Activity Daily of Living (ADLs) there is a rise in male and female labor force participation. Gertler *et al* 2002 has related change in labor supply with the health status; in his study it is observed that chronic symptom in an individual is associated with a one hour reduction in labor supply. If an individual has moved from a complete health status to sick then there is a loss of work by almost 31 hours per week, this more or less accounts for fall of 84 percent of work as compared to baseline. If a household

head is experiencing an illness symptom then there is significant rise in the labor supply of other family members (Gertler *etal* 2002).

Clearly there exists research exhibiting the disease impact on economics. However, there are several gaps in the existing analysis that could be improved and the gaps can be filled. First of all there are few studies conducted on Indian context on how the diseases impact on households in terms of earning losses (eg. Ajay Mahal *etal*; Anup karan *etal*). Even though the former study conducted is on CVD not on the entire spectrum of disease. In both the studies death of an adult in a household has not been taken into account when considering the impact of disease and death lost in terms of household economic activity. In some of the studies on Sub-Saharan African countries they established a clear relationship between how adult mortality has affected the households in terms of earning losses and school drop outs.

Data and Methods

In order to understand this dynamics of adult illness and death effect on economic, earnings. We will consider household containing a member reporting an adult illness or death and compare their households with similar socio economic and demographic characteristics that don't experienced adult illness or any child illness and deaths in the preceding year of the survey.

To full fill this research question we will use the propensity score matching method for causal inference on employment for household that experienced adult illness and deaths. Using the NSS 75th data. Propensity score matching method will be used, with this method we will compare the outcome of the households effected with adult illness and deaths to the households with no adult illness and deaths using a cross sectional data.

Results

In the result we found that the households that experienced disease a greater hospital admission, lower workforce participation and higher hospital expenditure as compared to match households. Work force participation among household effected with disease are lower as compared to control households in the sample, the workforce participation in diseased households are lowered by 2.9% as compared to matched or controlled households. As a robustness check health care utilization and the hospital expenditure (inpatient and outpatient) variables were are also considered for analysis. With these indicators it was found that the mean expenditure spent by households effected by disease are INR 100-200 more as compared to the matched household that received outpatient services. While considering inpatient services received as indicator it was found that households affected by disease spent 1500-2000 INR more expenditure as compared to matched or controlled households in India. From the above PSM analysis we can conclude that household that experienced disease in the past one year have higher burden in terms of expenditure, wage loss and loss of work participation as compared to households that don't diseases.