Determinants of Household Health Expenditure: Case of Urban Orissa

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DETERMINANTS OF HOUSEHOLD HEALTH EXPENDITURE: CASE OF URBAN ORISSA

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I. RATIONALE OF THE STUDY

Poverty invites malnourishment. Malnutrition has been identified as the "biggest single contributor to child mortality in developing countries" (FAO, 1970). The malnourished mother gives birth to a low birth weight baby. Malnourishment after birth lowers the child's resistance to disease. A malnourished child may suffer mental impairment and thus benefit less from any education that is provided. Malnutrition affects human growth and development by adversely affecting the normal shape and size of the body, and early childhood it can result in serious retardation in mental development. In India, where children are expected to help in agriculture (as most of the people depend on it), the rates of school attendance is low, and poor health lowers the still further. The child who is hungry while at school may gain little from education. Poverty and ill health waste educational resources. Thus, ill health is the cause of poverty, but poverty is also a cause of ill health. Lack of knowledge can be a direct cause of ill health, or it can cause it indirectly by being one of the causes of poverty.

Different socioeconomic factors could affect health at different times in the *life course* (Rahkonen, Lahelma and Huuhka, 1997; Smith, Hart, Blane and Hole, 1998), pertaining at different levels (e.g., individual, household, neighbourhood) (Robert, 1999; Yen and Syme, 1999). Among researchers there is growing acceptance that health and its social distribution need to be studied over the whole of the *life course* (Bartley, Blane and Montgomery; 1997). *Diet* affects the health of socially disadvantaged people from the cradle to the grave (James, Nelson, Ralph and Leather; 1997). Accumulating evidence suggests that an individual's health can be influenced by the socioeconomic characteristics of the *neighbourhood* in which she or he lives, above and beyond her or his own individual level socioeconomic status (Robert, 1999; Yen and Syme, 1999). *Past socioeconomic* factors could act independently or modify the effects of

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current factors on health (Smith and Ben-Shlomo, 1997). The *stress* history – the accumulation of psychosocial experiences beginning in infancy and continued throughout the life course – seems to have biological effects that will influence the development of degenerative disease (Brunner, 1997).

People's health is influenced by income (both per capita income and national income), occupation, diet, life courses stress, cultural norms, past socioeconomic factors and neighbourhoods, levels and pattern of educational attainment (schooling); population growth, density and age structure; natural resources abundance; personal and government saving (investment rate); physical capital stock; economic policy, for example liberalization, globalization and privatization; the quality of public institutions; the geography, for example the location and climate of a country.

The above studies are based on the macro level secondary data. Little attention has been given to the micro aspects of health research by the researchers, government, policy makers and development planners. Further, in India, it is also found that a large proportion of health research has concentrated on a few key states – Keral, Madhya Pradesh, West Bengal and Uttar Pradesh – while paying less attention to others (Saigal, 2002). In this connection, the present paper is a micro level study based on primary data to find out the impact of income *and* education on household health expenditure in urban *Orissa*. The main goal of the paper is to increase awareness – not only among health researchers but also among policy makers and practitioners who use health research findings – about the influence of socioeconomic characteristics in terms of income and education on household health expenditures, as well as to encourage improved approaches.

II. METHODOLOGY AND DATABASE

The study is based on primary data collected from Bhubaneswar and Cuttack, which are chosen on the basis of judgment sampling method as both the cities appropriately represent urban Orissa. Multi-stage random sampling method is adopted to select households (HHs), i.e., the sampling unit, from each city. The first stage units are the wards and second stage units are the HHs. Total 125 HHs are surveyed. Data of four HHs are deleted because after cross-checking they are found fake and irrelevant. Hence, the sample size is one hundred twenty one.

To substantiate the objective, i.e., to find out the effect of income and education on household health expenditures, regression analysis is used and descriptive statistics are estimated. Mainly, three variables are used for this purpose: household health expenditure, income of the household and education of the head of the household. To represent the household health expenditure, per head health expenditure (PHE) is calculated by dividing total annual health expenditure of the household by the household size. Similarly, for income of the household, per head income of the household (PHI) is calculated by dividing total annual household income by size of the household. Dummy variable is used for education in the regression analysis, those head of the family is educated the value one is assigned and those of uneducated, zero value is assigned.

III. DISCUSSION OF RESULTS

The descriptive statistics shows (see Table 1) that PHI is Rs.24, 220.83 per annum with 23546.06 and 0.97 as standard deviation and coefficient variation respectively where as PHE is Rs.1898.10 per annum with 2466.27 and 1.3 as standard deviation and coefficient variation respectively. The mean education is 0.97 with 0.18 and 0.19 as standard deviation and coefficient variation respectively. In urban Orissa, an average person spends 7.83 per cent of his/her income on health expenditure from his own pocket.

In an average, a person in rural area spends 46 per cent of what a person in urban area spends on health expenditure from his own pocket as his / her income is only around 41 per cent of his / her urban counterparts. But a person in rural area spends around nine per cent of his / her income on health care from his own pocket which is more than a person in urban area who spends only around eight per cent of his / her income (Rout, 2005). This is because (i) government spending on health care is more in urban than rural area which reduces people's expenditure on it from their own pocket; (ii) in urban area, government and people take more preventive measures than rural area which reduces people's expenditure on their curative care; (iii) urban people take more precautionary measures for health care due to their higher education than rural people; and (iv) a person in rural area spends more on transport cost, which is one of the main component of the health expenditure, to avail the medical facility, than a person in urban area, as it is available far away from his / her residence.

TABLE 1: DESCRIPTIVE STATISTICS			
VARIABLES ⟶ DESCRIPTIVE STATISTICS ↓	PER HEAD INCOME	PER HEAD HEALTH EXPENDITURE	EDUCATION
Mean	24220.83	1898.10	0.9669
Standard Deviation	23546.06	2466.27	0.1795
Coefficient of Variation	0.97	1.3	0.19
Highest Value	140000.00	13100.00	1.00
Lowest Value	2250.00	137.50	0.00
Range	137750.00	12962.50	1.00

Source: **Compiled from Primary Data**

To find out the impact of household income and education of the head of the household on the pattern of health expenditure (PHE) a linear regression model is fitted (see Table 2 and Figure 1) as **PHE = -696.046 + 0.82PHI + 0.03EDN** with **R^2 value 0.68**, which indicates that a rupee increase in income brings about 82 paise increase health expenditure of a person and an educated person on an average spends three paise more in a rupee than the uneducated person on health expenditure.

In both rural and urban areas income has positive influence on health expenditure but the influence is more in urban area than rural area. In finding out the influence of education on health expenditure, it is found that, in both rural and urban areas, an educated person on an average spends three paise more in a rupee than the uneducated person (Rout, 2005). It indicates that education has same impact on health expenditure irrespective of rural and urban areas.

Figure 1

Relationship between PHI and PHE

Source: Primary Data
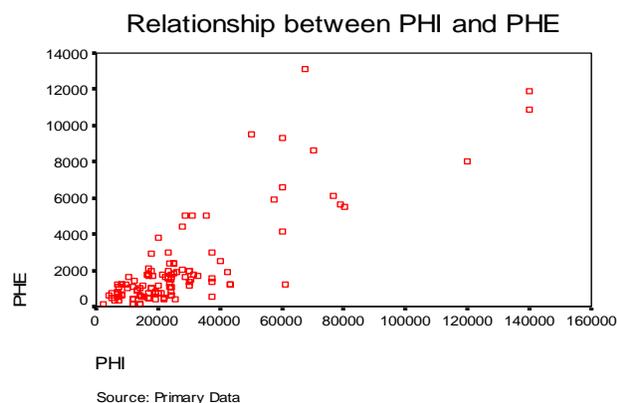
TABLE 2 REGRESSION OUTPUT: ANOVA								
	Sum of Squares	df	Mean Square	F	Sig.	R^2	Std error	D-W Stat.
Regression	497127930.086	2	248563965.04	126.008	.000	.68	140.4945	1.634
Residual	232767381.533	188	1972604.928					
Total	729895311.619	120						

a Predictors: (Constant), EDN, PHI
b Dependent Variable: PHE

COEFFICIENTS

Standardized Coefficients		t	Sig.	95% Confidence Interval for β		Correlations		Collinearity Statistics	
	β			Lower Bound	Upper Bound	Zero-order	Partial	Tolerance	VIF
Constant	-696.046	-.982	.328	-2099.02	706.930				
PHI	0.822	15.769	.000	0.075	0.097	.825	.824	.994	1.006
EDN	0.033	.640	.523	-959.697	1876.72	.095	.059	.994	1.006

a Dependent Variable: PHE
Source: **Compiled from Primary Data**

From the study it is found that as disposable income (Y_d) of the household increases, individual takes more care of his life, hence health expenditure (H) increases but at a particular level of income, due to high life risk, health expenditure becomes independent of income and perfectly elastic, which is termed as *"High Life Risk Path (HLRP)"*. The health expenditure during HLRP depends on household's past saving (S) and loanable capacity (L).

FIGURE 2
THE HEALTH EXPENDITURE CURVE
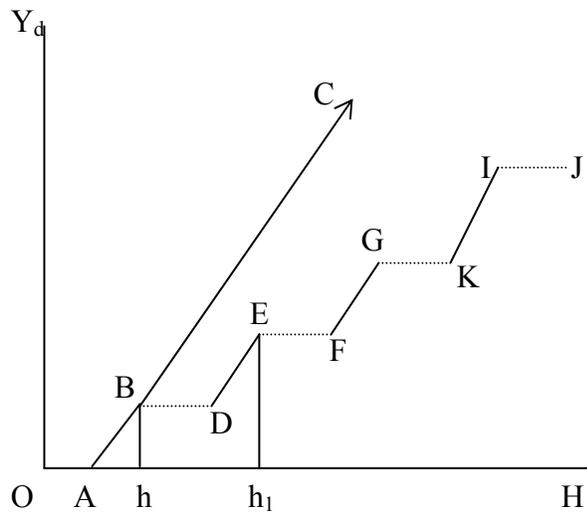
In figure 2, OA is autonomous health expenditure. In normal life, ABC is the health expenditure curve (with linear relationship assumption between health expenditure and disposable income) without any high life risk. But due to high life risk at Bh level of disposable income, B is the bearable point[3] and BD is the HLRP. Again normal life starts from point D to point E. At Eh_1 level of disposable income, E is the bearable point and EF is the HLRP and so on. Hence, ABDEFGKIJ is the health expenditure path at high life risk, which is not a normal path.

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[3] The bearable point is the point at which the maximum health expenditure can be financed from a particular level of disposable income.

IV. CONCLUSIONS

Per capita income is the mostly wide discussed socioeconomic determinants of mortality, as it is considered a summary of the ability of an economy to meet the needs of its citizens. The impact of poverty (loosely speaking low per capita income) on ill health is well known and extensively documented. Ill health can also be an important cause of poverty because it can lead to loss of income, catastrophic health expenses, and orphanhood. Thus, improving health can make a substantial contribution to target 1, which aims to halve between 1990 and 2015 the proportion of people whose income is less than one US Dollar a day.

Well-educated people experience better health than the poor educated, as indicated by high levels of self reported health and physical functioning and low levels of morbidity, mortality and disability. In contrast, low educational attainment is associated with high rates of infection disease, many chronic noninfectious diseases; self reported poor health, shorter survival when sick, and shorter life expectancy. The positive association between health and socioeconomic status, whether measured by education, occupation or income, is largely due to the effects of socioeconomic status on health.

The study finds that income of the household has significant influence on its health expenditure where as the effect of education is insignificant. From the study it is found that as disposable income of the household increases, individual takes more care of his life, hence, health expenditure increases but at a particular level of income, due to high life risk, health expenditure becomes independent of income and perfectly elastic, which is termed as *High Life Risk Path (HLRP)*. The health expenditure during HLRP depends on household's past saving and loanable capacity.

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