

Correlates of out-of-pocket spending on health in Nepal: implications for policy

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ABSTRACT

Background: A key objective of universal health coverage is to address inequities in the financial implications of health care. This paper examines the level and trend in out-of-pocket spending (OOPS) on health, and the consequent burden on Nepalese households.

Methods: Using data from the Nepal Living Standard Survey for 1995–1996 and 2010–2011, the paper looks at the inequity of this burden and its changes over time; across ecological zones or belts, development regions, places of residence, or consumption expenditure quintiles; and according to the gender of the head of the household.

Results: The average per capita OOPS on health in Nepal increased sevenfold in nominal terms between 1995–1996 and 2010–2011. The share of OOPS in household consumption expenditure also increased during the same period, primarily as a result of higher health spending by poorer households. Thirteen per cent of all households were found to incur catastrophic health expenses in 2010–2011. This proportion of households incurring such expenditure rose between the two time periods most sharply in the Terai belt, eastern region and poorest quintile.

Conclusion: The health-financing system in Nepal has become regressive over the years, as the share of the bottom two quintiles in the total number of households facing catastrophic burden increased by 14% between the two periods.

Key words: generalized linear model, health expenditure, Nepal, Nepal Living Standards Survey, out-of-pocket

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INTRODUCTION

Health equity has been conceptualized and defined in several ways, as its principles are derived from the fields of philosophy, ethics, economics, medicine, public health and others. The World Health Organization (WHO) defines inequity as “differences [in health status], which are unnecessary and avoidable, but in addition, are considered unfair and unjust”.¹ The literature on social determinants of health brings into the health-inequity discussion a wide range of issues that result in social gradients in health.^{2,3} The focus on *avoidable* health inequalities between groups of people within countries, and between countries, which emanate from social and economic conditions, has an important corollary: inequities can be addressed to a great extent if one tackles, in the first instance, those that are accentuated because of existing anomalies in a variety of policies. The Commission on Social Determinants of Health notes that: access to and utilization of health care is vital to good and equitable health. The health-

care system is itself a social determinant of health, influenced by and influencing the effect of other social determinants. Gender, education, occupation, income, ethnicity, and place of residence are all closely linked to people’s access to, experiences of, and benefits from health care.³

A key factor in inequities in access to and utilization of health care is households’ need and ability to pay. The World Health Report on health-systems financing brings together a large body of evidence that highlights various barriers to access that enhance the vulnerability of a large section of low- and middle-income country populations to health shocks.⁴ Paying for health care from one’s own resources remains an important source of burden on households and, together with other social determinants of health, accentuates existing inequities. Moving towards a system of universal health coverage is certainly an important way of bringing down out-of-pocket spending (OOPS) and addressing a significant source of inequity in financing and, therefore, in health outcomes.

Nepal is a typical South Asian society, with many of its social inequalities coming from economic inequities compounded by issues of caste and ethnicity.⁵ It is among the poorest countries in the world, and ranked 157 on the Human Development Index of 187 countries during the year 2012.⁶ Regional imbalances play an important role. The latest Demographic and Health Survey in Nepal (2011) indicates that wealth inequality is higher in rural than urban areas.⁷ Among the three ecological zones – mountain, hill and Terai – wealth inequality is highest in the hills. Among the five development zones (eastern, central, western, mid-western and far-western), wealth inequality is highest in the central and mid-western development regions and in the mid-western hill subregions. Finally, as in other South Asian countries, there are gender inequalities in Nepal. This is evidenced by differences in, for example, education and health, and in significant gender-based violence.⁸ However, despite political instability and internal conflicts, which have constrained progress and growth, Nepal has been able to reduce poverty and inequality significantly; the overall Gini coefficient (based on expenditures) declined from 41 to 35 between 2003–2004 and 2010–2011.⁹

This paper uses the Nepal Living Standards Survey (NLSS) over two periods to examine the level, variation and trend in OOPS in Nepal. Since regional imbalances are important in the country, we look at the changes in inequalities over time, and across ecological zones or belts, development regions, and rural–urban residence, in addition to consumption quintiles and gender of the head of household – the other two variables used to analyse inequality in household OOPS on health. It sets the context by discussing the health-financing system in Nepal and policies that have attempted to increase health coverage.

HEALTH-FINANCING SYSTEM

The public health system of Nepal comprises health clinics, sub-health posts, health posts, and primary health-care centres at the primary level, district and zonal hospitals at the secondary level, and regional and central hospitals at the tertiary level. Private health-care institutions in the form of hospitals, medical colleges and nursing homes have also emerged in the recent past.

Even before the 2007 interim Constitution enshrined basic health care as a fundamental right, the government had been making incremental efforts to increase access to health-care services, through a comprehensive framework of health policies, strategies and plans – such as the National Health Policy 1991, the Ninth Five Year Plan (1997–2002), and the Nepal Health Sector Programme Implementation Plan (2003–2007).¹⁰ The first policy intervention aimed at providing financial protection was introduced in 2006, when emergency and inpatient care was made free for vulnerable groups like the poor, destitute, elderly, etc. at district hospital and primary health-care centre levels. In 2007, free health care at the level of health posts and primary health-care centres was universalized. In 2009, all citizens were made eligible for free outpatient, emergency and inpatient services, and for drugs at

district hospitals, primary health-care centres, health posts and sub-health posts.^{11,12} In 2009, the government introduced the Aama Suraksha Karyakram, a scheme targeting the demand side of safe motherhood. This scheme includes both consumer-led demand-side payments and provider payments. Consumers receive 1500 Nepalese rupees (Nr) in high mountain districts; Nr1000 in hill districts; and Nr500 in Terai districts, to cover transportation and other access costs. Health staff receive Nr200 per home delivery assisted; health facilities of up to 25 beds receive Nr1000 per delivery; and facilities with more than 25 beds receive Nr1500 for normal deliveries.¹³ These measures led to creditable improvements in health access and outcomes in Nepal, relative to its income levels; the rate of progress was better than in some of its neighbouring countries. Despite these measures, the private health sector has been growing steadily, and the household-level financial burden has increased concomitantly. Two important issues continue to afflict the current health-care system and are growing: (i) geographical and income-related inequalities in population health outcomes; and (ii) high household OOPS for health care, largely in the as-yet unregulated private sector.¹⁴

The National Health Accounts (NHA) (2006/2007 to 2008/2009) give a fairly recent report on the state of health financing in Nepal. They show that total and per capita health expenditure has grown substantially over the years, and that the private sector is the chief source of health expenditure (60%), followed by the general government and the international community. Disquietingly, households spent about 90% of private health expenditure out of pocket, and about 55% of total health expenditure. In many countries, estimation of OOPS is based solely on household surveys; in Nepal, however, the NHA survey health-service providers. While the procedure's efficacy and robustness can be debated, it allows classification of OOPS by agents, functions and providers. Retail sales and supplies of medical goods, private hospitals, clinics and laboratories are the main recipients of out-of-pocket payments; the NHA showed that, in terms of function, outpatient and curative care services together received around 78% of the total out-of-pocket payments.¹⁵

Few studies have examined the extent and variation of the financial burden of OOPS on Nepalese households. The Central Bureau of Statistics carried out the first NLSS in 1995–1996, followed by another one in 2003–2004. The NLSS 2010–2011 is the latest available round. All three surveys followed the methodology of the Living Standards Measurement Survey (LSMS) developed and promoted by the World Bank. The NLSS (NLSS-III) was last conducted during 2010–2011, and was made available in November 2011.¹⁶

Findings from one study that used the NLSS-I for household out-of-pocket expenses on health indicate that households spend around 5.5% of their total consumption expenditure on health care.¹³ Rural households spend more on health care than urban, after controlling for economic status. Another finding from the study is that households spend large amounts on health care when their initial consultation is with a public practitioner, even though such consultations are supposed to

be priced nominally. According to the authors, this probably indicates that private health-service providers complement public providers.

Another study used NLSS-I to investigate the determinants of household OOPS, controlling for sickness and provider choice, and found that income had both direct and indirect effects on health expenditure.¹⁷ The direct effect was measured by income elasticity of out-of-pocket expenditure; the indirect effect manifested as likelihood of illness and provider choice. Housing and sanitary conditions emerged as significant determinants of illness and, therefore, out-of-pocket expenses. This study also found higher average health-care expenditure among the rural sample than among the urban population.

Another landmark study of Nepal's health financing is a benefit incidence analysis of health subsidies on population subgroups, categorized by region, caste, gender, dwelling area, income, poverty and multidimensional poverty.¹⁸ The study used NLSS-III data for demand-side variables and public expenditure review of the health sector for the supply side. Key findings suggest that the largest per capita gross subsidy goes to the western region of Nepal, whereas the largest net subsidies (net of direct cost recoveries, e.g. consultation fees) accrue to the mid-western and far-western regions. Women receive slightly higher gross subsidies than men. Finally, the fourth income quintile captures the highest public subsidy on health, while the bottom quintile captures the lowest.

A few other studies have looked into the issue of private OOPS on health and its economic impact in Asia in general, during the mid-1990s; Nepal was one of the countries in the sample.¹⁹⁻²¹ These studies have shown that, among the 11 countries, Nepal is one with the highest reliance on out-of-pocket payments to finance health care, and charges for public-sector care account for more than 40% of total out-of-pocket payments. Nepal had the highest poverty rates, which increased further when OOPS on health was subtracted from the total resources of the household.

Nepal has been considering ways to implement universal health coverage, though the exact process of implementing it remains undecided as of now. While augmenting and reallocating public resources within the health system and regulating the private sector would remain at its core, the design, amount and implementation level (national or subnational) remains to be decided.

METHODS

The NLSSs follow the LSMS, designed by the World Bank and also applied widely in other low- and middle-income countries. There have been three rounds of the NLSS (1995–1996, 2003–2004 and 2010–2011), all reasonably comparable on information range and schedule structure. There have been certain amendments though, in terms of the recall period. The NLSS-III comprises two independent samples: a cross-sectional sample of 5988 households and a panel sample of 1032 households. Half of these 1032 households were visited during NLSS-I as well. The survey collects information on aspects

of household welfare such as demography, housing, access to facilities, consumer expenditure, education, and health, in rural and urban areas of the 75 districts of the country, grouped into three ecological belts and five development regions. The NLSS-I surveyed 3373 households.¹⁶ This study uses data from the cross-sectional sample of NLSS-I and NLSS-III.

The health section of the NLSS-III schedule comprises four parts: (i) chronic illnesses; (ii) illnesses or injuries; (iii) HIV/AIDS knowledge; and (iv) immunizations. The first part contains information on, among others, the type of illness and the expenditure incurred on its treatment in the past 12 months. The second part, which might be interpreted as acute illnesses, contains information on the same variables but for a reference period of 30 days. The NLSS-I schedule also contains these sections, except the one on HIV/AIDS knowledge. In this study, the annual value of the health expenditure on acute illnesses was derived from the monthly figures, and added to the health expenditure on chronic illnesses – already available on an annual basis – to arrive at a household's total annual health expenditure. For total consumption expenditure, food expenditure, frequent non-food expenditure, infrequent non-food expenditure and the value of inventories (durable goods) purchased within a year from the date of the survey were added together. Total consumption expenditure is inclusive of the consumption of home production.

Consolidated expenditure on health by the households was also available from the section on frequent non-food consumption in the NLSS schedule. However, this estimate was quite different from the total health expenditure obtained from the section on health, following the methodology discussed above. Health expenditure derived from the health section was considered as the actual out-of-pocket expenditure on health. Consequently, an adjustment had to be made to the total consumption expenditure. Consumption expenditure was adjusted by deducting the health expenditure reported in the section on frequent non-food consumption from the total consumption expenditure, and then adding the health expenditure obtained from the health section. Thus, the total consumption expenditure estimated is different from the reported total expenditure in other studies that have used NLSSs.

To understand which variables might influence health spending and health share, a simple regression was run on the pooled data from the two surveys. Two models were tested, with the dependent variable being per capita health spending and share of health in total household spending, respectively. The explanatory variables were belt, rural–urban, region, consumption category, gender of the head of household, and a created variable indicating the time period.

Since health-care expenditures are not generally normally distributed, use of ordinary least squares analysis may yield biased results. Such expenditures frequently have a log-normal or gamma distribution;²² thus, the generalized linear model is more appropriate. The equation was estimated using the generalized linear model, with the assumption that the log link has a gamma error distribution.^{23,24}

RESULTS

Out-of-pocket spending on health

Table 1 shows the estimates of out-of-pocket annual health expenditure, total consumption expenditure and adjusted consumption expenditure. As shown in Figure 1, the average per capita OOPS on health in Nepal increased sevenfold in nominal terms between 1995–1996 and 2010–2011, and currently stands at Nr3278. The factor by which nominal OOPS on health per capita increases between the two periods varies widely across select socioeconomic characteristics – the increase was fourfold for urban Nepal, over sevenfold for rural Nepal, sixfold for the eastern and far-western region, and eightfold for the central region. Perhaps the most significant of all observations emerges when the increase factor across consumption expenditure quintiles is examined. The richest quintile experienced a fivefold increase, while in 2010–2011, the poorest two quintiles spent more than 10 times the amount that they did in 1995–1996.

Figure 2 presents the share of OOPS in total consumption expenditure (henceforth OOP share) of households between the two rounds. Clearly, this share has increased from 3.4% per cent in NLSS-I to 4.5% in NLSS-III. This increase has been quite uniform across all the parameters examined, except for

the western region. The other point to note is that OOP share is higher for rural areas than for the urban areas, and, among the three belts, highest for the Terai belt, where the increase between the two rounds has also been sharp. The increase has also been sharp for the eastern, central and mid-western regions.

In terms of consumption quintiles and gender of the household head, Figure 2 indicates that the increase between the two rounds has been sharpest for the first two quintiles. In fact, the richest quintile has seen a fall in OOP share. There seems little difference in OOP share between male-headed households and female-headed households, but both have seen a rise between the two periods. Overall, however, the results indicate that the distribution of OOPS was rather progressive in the earlier period and has worsened slightly.

The results of the regression analysis of the pooled data from the two surveys are reported in Table 2. As mentioned before, the objective of these regressions is to understand the determinants of OOPS on health of households. Two variants, with dependent variables as per capita health spending and share of health expenditure in household consumption expenditure, respectively, were estimated. The first set of estimates indicates that the statistically significant results are the positive association of OOPS with income (the higher the

Table 1: Estimated out-of-pocket and consumption expenditures

	Number of households		Annual out-of-pocket health expenditure per capita (Nr)		Annual total consumption expenditure per capita (Nr)	
	NLSS-I	NLSS-III	NLSS-I	NLSS-III	NLSS-I	NLSS-III
Sector						
Rural	2657	3900	432	3133	12 816	67 659
Urban	716	2088	1049	3828	28 563	92 254
Belt						
Mountain	409	408	319	2366	15 231	71 797
Hill	1740	3204	505	3224	16 222	84 053
Terai	1224	2376	476	3472	12 226	63 858
Region						
Eastern	717	1272	544	3153	16 650	64 591
Central	1320	2280	482	3692	15 130	77 108
Western	624	1152	568	3967	12 068	89 228
Mid-western	360	756	310	2163	12 757	52 687
Far-western	352	528	291	1872	10 542	56 972
Expenditure quintiles						
Poorest	675	1198	102	1130	5124	26 607
Second	675	1198	203	2079	7507	44 077
Middle	674	1197	394	2476	9949	55 833
Fourth	675	1198	518	3969	13 760	84 323
Richest	674	1197	1484	7640	28 516	166 950
ALL	3373	5988	477	3278	14 061	72 364

NLSS: Nepal Living Standards Survey; Nr: Nepalese rupees.

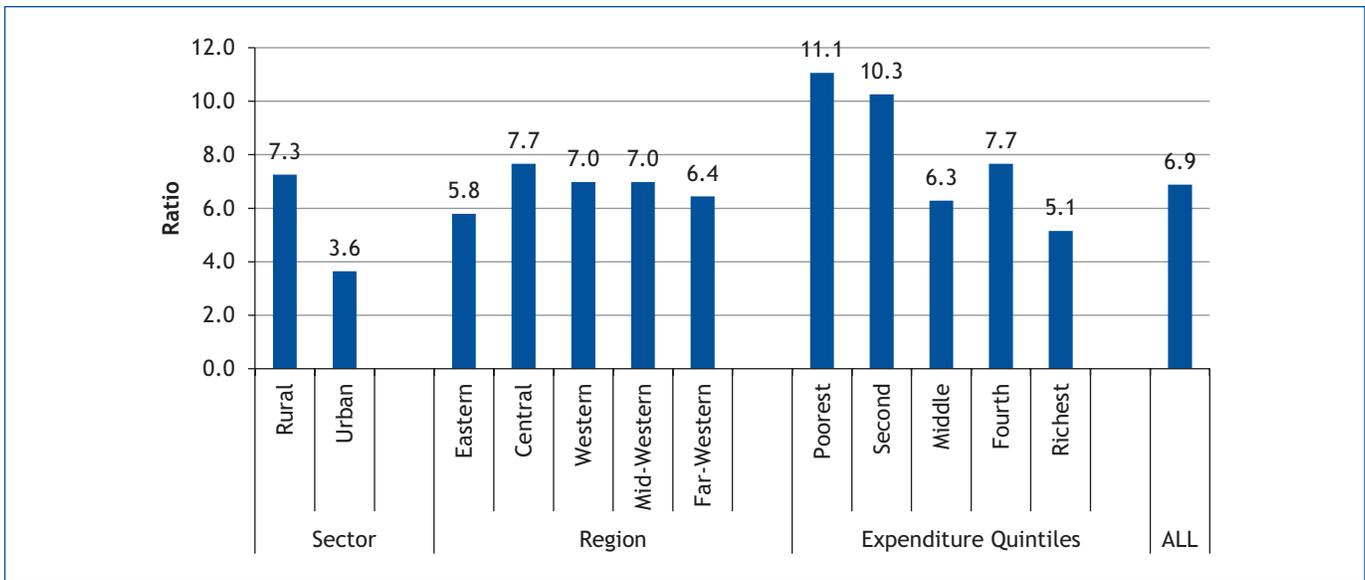


Figure 1: Ratio of per capita out-of-pocket expenditure – 2010–2011 to 1995–1996

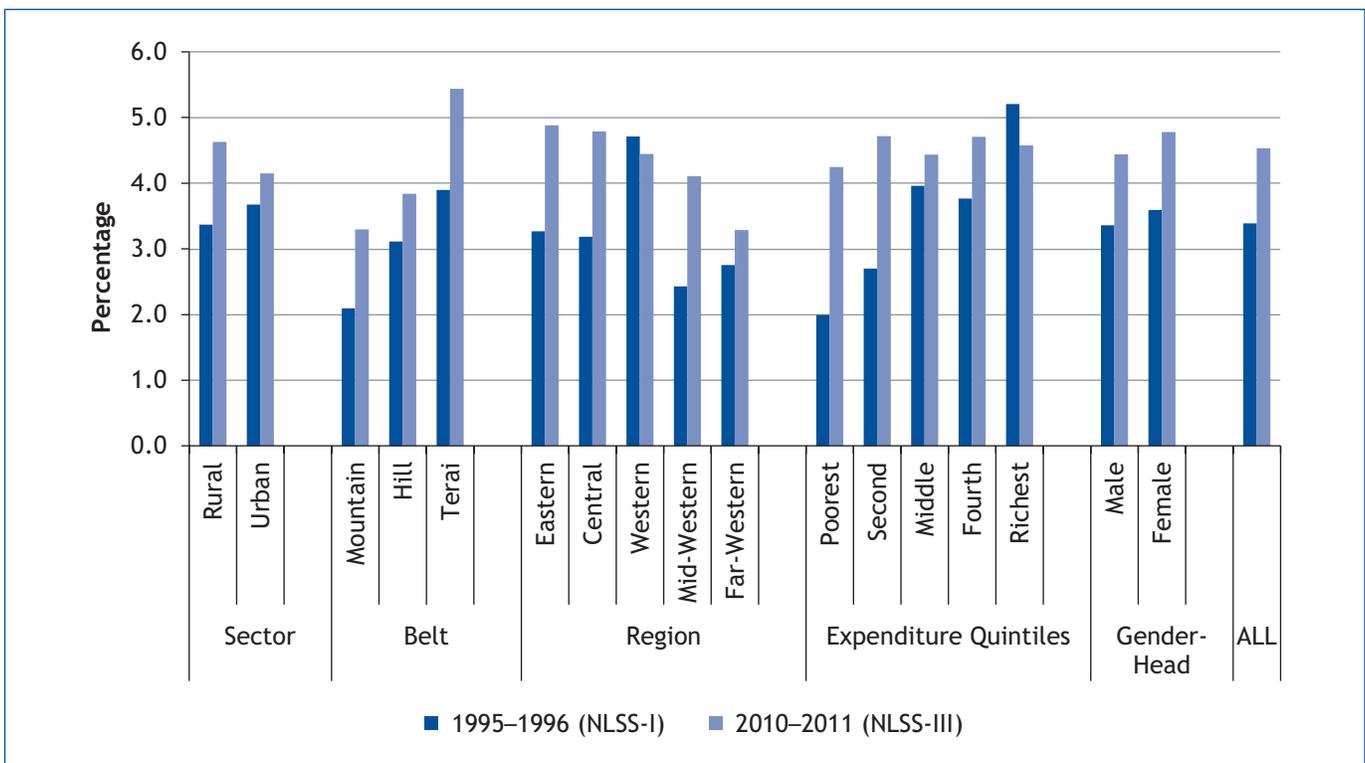


Figure 2: Share of out-of-pocket health expenditure in total consumption expenditure of households

NLSS: Nepal Living Standards Survey.

income, the higher the OOPS), the lower association for hills and mountains compared with the Terai belt (interpreted to mean that OOPS is relatively higher for the Terai than for the other two regions), and higher expenditure in all the regions compared with the omitted far-western category (indicating that OOPS is lowest in this region compared with the other categories). Also, OOPS is significantly lower for the earlier

period than the later one. In the case of the health-share model, too, the coefficients are of the same sign and strength except for the mid-western region, which seems no different from the far-western region.

A consistent negative significant coefficient corresponding to the time (NLSS) variable indicates that OOPS and shares

Table 2: Determinants of out-of-pocket spending on health

Independent variables	GLM (dependent variable: per capita health spending)		GLM (dependent variable: share of OOP in total consumption expenditure)	
	Coefficient	z	Coefficient	z
Rural	-0.15	-2.1*	0.01	0.09
Female head	0.02	0.37	0.03	0.41
Per capita consumption	0.00001	9.6***		
NLSS round (NLSS-1 = 1)	-1.2	-15.3***	-0.50	-8.58***
Belt				
Hill	-0.17	-2.7***	-0.26	-4.34***
Mountain	-0.28	-2.3**	-0.40	-3.56***
Region				
Eastern	0.47	4.1***	0.29	2.75**
Central	0.48	4.5***	0.32	3.1***
Western	0.57	4.9***	0.44	4.06***
Mid-western	0.22	2.0**	0.14	1.27
Constant	—	—		
Link	Log		Log	
Family	Gamma		Gamma	
Observations	9361		9361	

*, ** and *** represent significance at 99%, 95% and 90% confidence intervals, respectively.

GLM: generalized linear model; NLSS: Nepal Living Standards Survey.

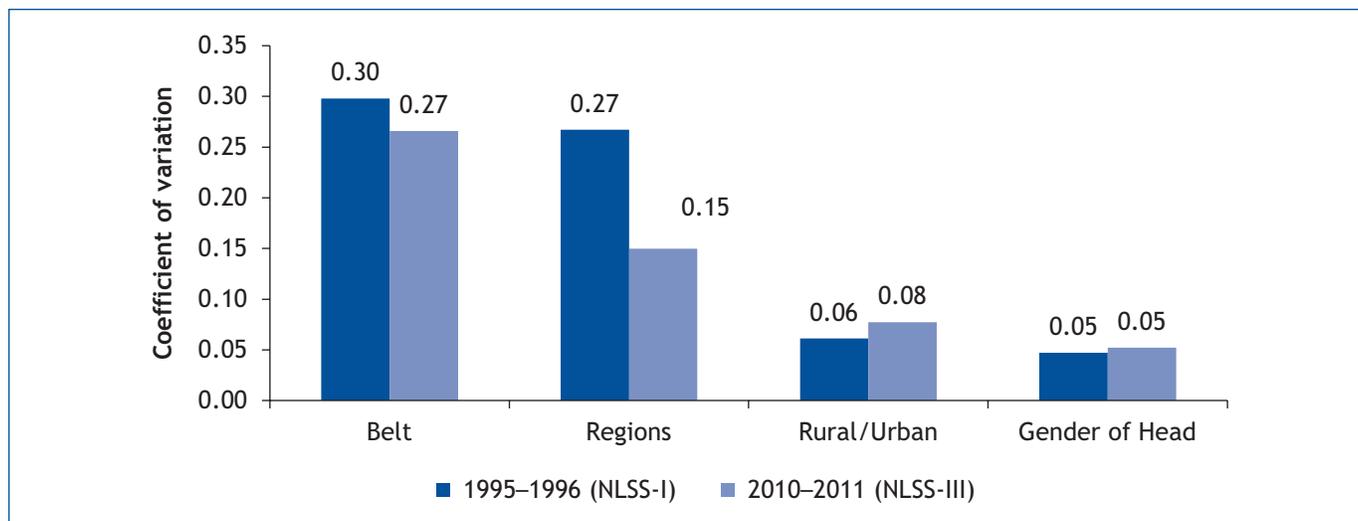


Figure 3: Coefficient of variation in share of health in total household expenditure

NLSS: Nepal Living Standards Survey.

have increased between the two rounds. As from Figures 1 and 2 it can be seen that this increase has not been uniform within groups, it is important to objectively identify inequality within the groups and its behaviour over time. One easy way of verifying this is through the coefficient of variation. The change in the coefficient of variation of the share of health in household consumption was analysed across the regional and gender variables. Figure 3 indicates a substantial decline in the inequality in the share of OOPS across the belts and regions, but more so for the regions. The inequality in health share

between rural and urban areas has increased slightly but not changed for female- and male-headed households.

The conclusion is that, while per capita OOPS and its share in total household consumption has increased over the years, the inequality in the share of OOPS within certain groups has declined. In other words, while all households are spending a higher amount out of pocket, their share shows lesser variation within the selected categories. The explanation is straightforward and may be seen in Figure 2, which shows that

the share showed only a small increase for those who were already spending more on health; rather, it increased at a faster rate for those with a relatively lower share during 1995–1996. Thus, an increase in OOPS at the lower end of the distribution is driving the inequality results. This is evident from the earlier results, where the ratio of health share of lowest to highest income quintile was only 0.38, which subsequently increased to 0.92, indicating that the poor are spending as much as the rich on health as a share of total consumption. Further analysis is needed to understand where exactly the burden of higher OOPS falls the most.

Distribution of out-of-pocket burden

This section attempts to look at the possible burden of catastrophic payments across the various categories in Nepal, to understand the distribution of such burden across regions and economic categories. While researchers have defined catastrophic payment in many ways, health spending is defined here as catastrophic if it is 10% or more of total household expenditure.^{25–28} Figure 4 presents the results on catastrophic expenditure, that is, the proportion of households in each category that spend more than 10% of their total consumption expenditure on health care. The percentage of households incurring such expenditure has increased, on average, from 10.7% in the earlier period to 13% in the later period. Also, the proportion has increased in rural areas and decreased in urban areas, although the difference is small for the latter. The proportion has increased from 12.9% to 16.2% in the Terai, which has seen the highest increase among the three belts. However, the other two belts have also seen some increase. The eastern region has seen the largest increase among regions,

followed by the central and mid-west; the western region has actually seen a fall, and there has been no change in the far west.

For income quintiles (see Figure 4), the largest increase in the proportion of households with catastrophic expenditure is from the poorest quintile, followed by the second quintile. The third and fourth quintiles have remained more or less the same, with a slight fall for the third quintile; and the richest quintile showed a decrease from 16.0% to 12.1%. An important observation is that the catastrophic headcount had a roughly positive income (consumption) gradient in 1995–1996, which is no longer the case, in the recent period. Figure 4 clearly shows that in 2010–2011 more households in the lower quintiles had to face the catastrophic impact of out-of-pocket health expenses, compared with those in the higher quintiles. In terms of gender of the household head, both types of households have experienced an increase in catastrophic burden over the two periods.

The most pertinent question for policy-makers is the composition of households experiencing catastrophic expenditure. The question can be posed thus: of all households experiencing catastrophic expenditure, what is the distribution across (for example) belts?

Figure 5 presents the percentage distribution of households facing catastrophic expenses over these categories for each year. The most important finding is that the bulk of households struck with catastrophic payments are in rural areas – 91.5% in the earlier period, which has reduced to 81.7%. The results did not change much for the three belts between the two periods, but in 2010–2011 over 56% of households that experienced

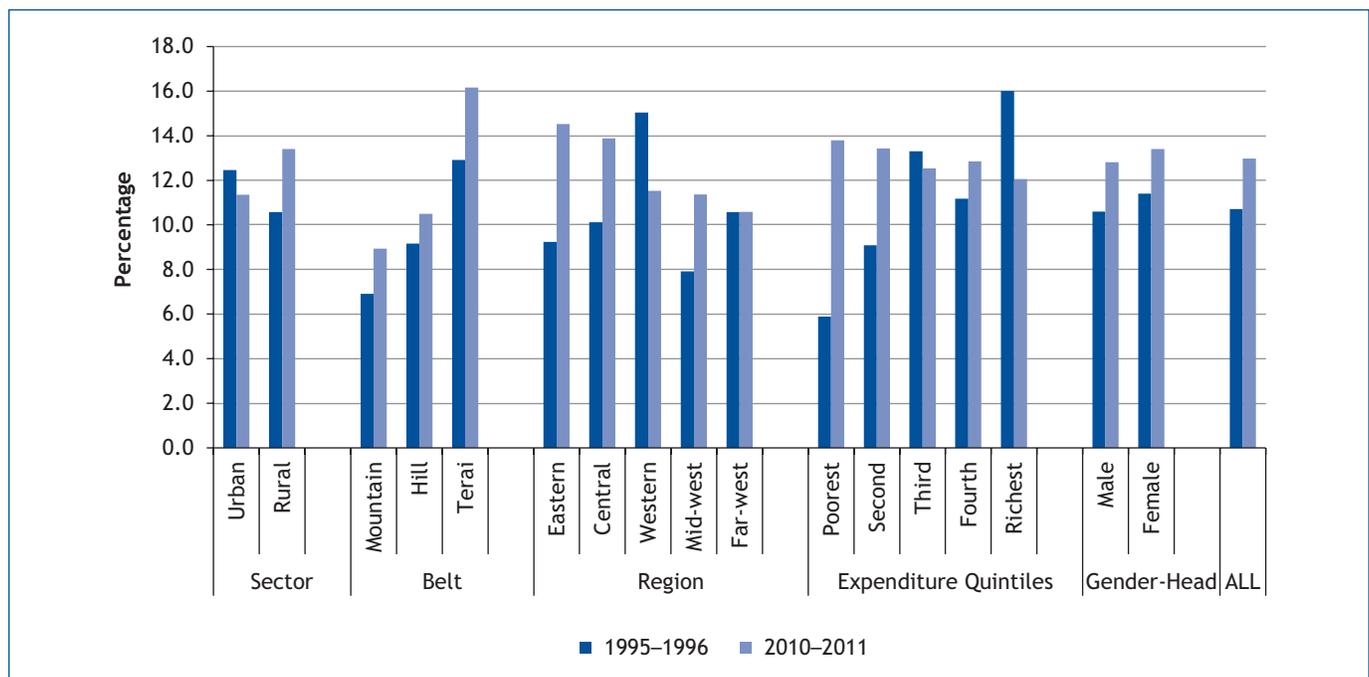


Figure 4: Households spending more than 10% of total consumption expenditure on health
 NLSS: Nepal Living Standards Survey.

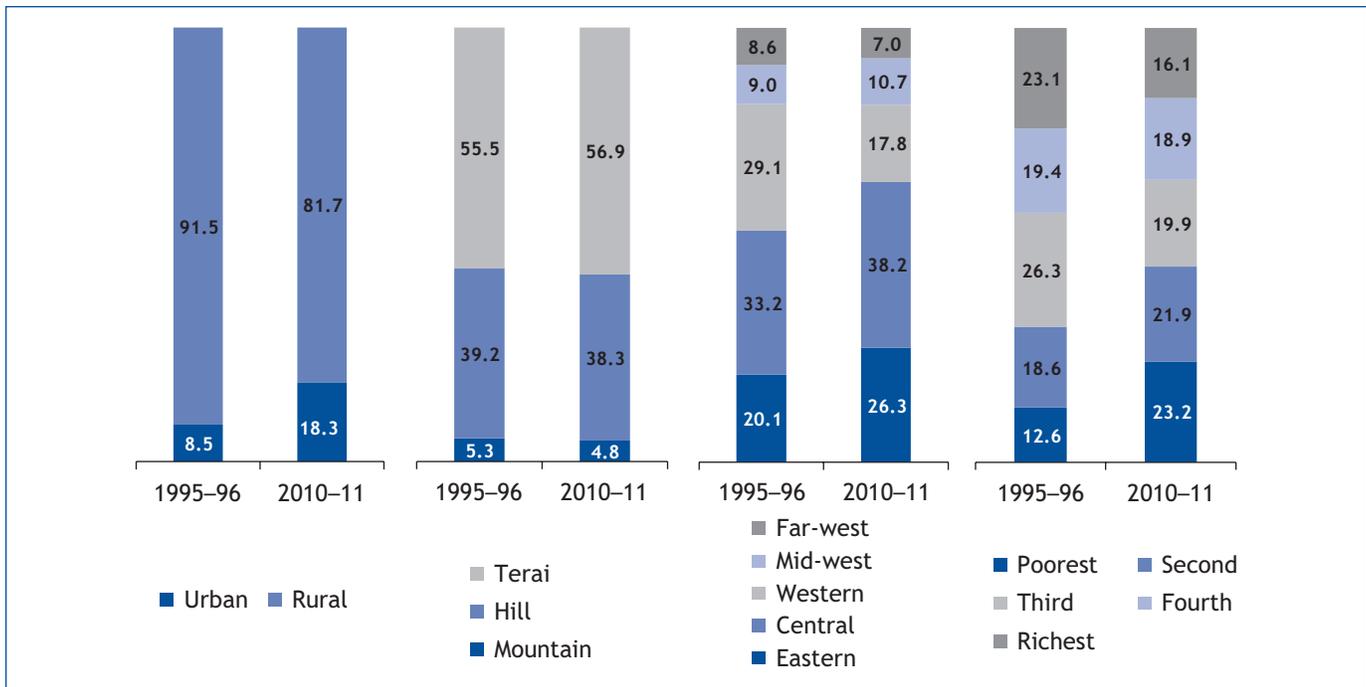


Figure 5: Percentage distribution of households experiencing catastrophic burden of out-of-pocket health spending

catastrophic expenditure lived in the Terai region. Between the two periods, the eastern, central and mid-western regions show an increase in their share of households facing catastrophic health expenses in Nepal. Circumstances are better in the western region, whose share has declined by 11% between the two periods, followed by the far-western region. As for consumption categories, the share of the bottom two quintiles in the total number of households facing catastrophic burden increased by 13.9% between the two periods and in 2010–2011, 45% of the worse-hit households come from the two lowest quintiles. The upper three quintiles also contribute to the total burden significantly, although less than the two lower quintiles. Finally, the proportion of female-headed households experiencing catastrophic expenditure has increased, although most households are headed by a male.

DISCUSSION

In Nepal, OOPS increased by more than 30% over a 15-year period, with the share of OOPS in consumption expenditure rising from 3.4% in 1995–1996 to 4.5% in 2010–2011. It is still lower than other South Asian countries such as India (over 7%). The average share increased because poor households increased their health spending. The incidence of catastrophic expenditure has increased, occurring mostly in rural areas, the eastern region, the Terai, and among the poor.

There are important policy implications: first, if OOPS is not addressed, it can contribute to poverty because of its impact through catastrophic expenditure. The vulnerable sections

of the population need immediate special attention in any universal health coverage scheme, especially if it is rolled out in a phased fashion. The most effective use of scarce resources for universal health coverage would be to target the priority areas highlighted by the preceding analysis, where most vulnerable households reside.

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