TOPIC

EQUITY IN HEALTH CARE FINANCING: THE CASE OF PAKISTAN

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CERTIFICATE

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Dedication

This research is dedicated to all the Health Economists and policymakers in Pakistan.

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List of abbreviations

HCS: Health Care System

PSLM: Pakistan Standard Living Measurement

HIES: Household Integrated Economic Survey

WHO: World Health Organization

GNP: Gross National Product

GDP: Gross Domestic Product

ATP: Ability to Pay

OOPs: Out Of Pocket spending

WHA: World Health Assembly

BHU: Basic Health Unit

RHC: Rural Health Centre

KPI: Kakwani Progressivity Index

EPF: Employee Provident Fund

SOCSO: Social Security Organization

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Abstract

This research is based on health care financing equity and equalities being investigated in Pakistan. The study has used secondary data, taken from PSLM and HIES 2015-16. The sample of 2033 households is selected for the study on equitability in health financing at the household level. The study has used descriptive statistics and indices to analyze the data. The study found that people with less income are more vulnerable to face catastrophic health expenditures. Health care financing is progressive in Pakistan with positive values of the Kakwani Index score. The study concludes that people pay more towards health financing as their income increases across households and quantiles in different provinces in Pakistan.

Keywords: equity in health care financing, OOPs, and equalities in health care financing.

CHAPTER 1

INTRODUCTION

1.1 Introduction

The equitable provision of resources from federal to provincial governments is critically important for sustainable health care service delivery. The key objective of the Health Care System (HCS) is to maintain equitable financing for the delivery of health care services. The importance of equitable health care financing can be observed in strategy-based papers, policy declarations, the research work of health economists and policy experts.

The straight classifications of finance sources for health care include government taxation, and out of pocket payments (OOPs payments). The discrepancies in the supporting sources for fund health care is growing over the years. Different types of health insurance programs are implemented, which can be at the national or community level. Government and non-government organizations with the support of development partners are supplying the health system in the country.

It is important to understand the concept of equity. Equity means social justice or fairness in the process of services provision for uplift and improved quality of living in human beings. This is a concept based on ethics particularly ethics in healthcare. Equity in health has been defined as the absence of socially unjust or unfair in health care service provision. The concept of equity is characteristically normative. However, equality is not considered normative in often cases. It is important to understand that most of the time

equity and equality are used interchangeably but specifically these are two different concepts, which are closely associated.

It is not the case that everywhere the health equity is commonly implemented for the benefits of the population regardless of age and productivity but in some cases, vertical equity is dominated by the common use of horizontal health equity programs.

World Health Organization (WHO) has emphasized the importance of the equity aspect as a policy objective when reforming health care systems, especially when attention has been focused too greatly on efficiency considerations.

This research is designed to study health care financing equity and it is quite plausible to understand the basic function and mechanism of vertical equity in health care programs for better and effective delivery of health services in Pakistan and it draws together all finance sources in Pakistan to evaluate the whole financing system.

Health financing and good governance are associated with each other and dealt with jointly. Economic prosperity and literacy are also associated with health care financing both at the national, province, and household levels. It is convincing that; Social inclusion and financial protection shall be provided through communal financing schemes. The rise of finance sources such as community health insurance and informal payment can be a more effective policy.

Health care financing policy plays a significant role in shaping the structure of health care organizations for efficient delivery of services. Available evidence shows that increased health care spending greatly improves the health status of the population. The priority given to health care will increase as a country's economic growth increases. This is

because the increase in the level of funding to the health sector depends largely on the rate of economic growth and the efficiency of taxation.

The first chapter gives a brief introduction of the topic "Equity in Healthcare financing: The case of Pakistan". The second chapter of the study is designed to understand the background and past work conducted on health care equity and its role in health care service delivery in Pakistan. The next chapter is data and methodology with a detailed explanation regarding the data, variables, and analysis of all finance sources and health care system indicators, followed by chapter4, which is an analysis of the available data to draw meaningful policy-oriented results for Health equity analysis in Pakistan.

Vertical equity is a desirable option to promote through academic and policy-relevant research projects. The study of Braveman, P & Gruskin, S. (2003) argued that health equity is two types, which are vertical and horizontal equity. The example of Vertical equity in health care can be considered, when people with different socio-economic conditions are treated not equally but equitably, only by understanding their needs and provided according to the needs of the person. More attention is given to people with more intensive health problems is vertical equity. This research is intended to investigate the status of health care programs nature in Pakistan to understand the nature of the policy implemented. The study will answer the question that what exactly is the status of equity in financing and allocation of health care resources, is it progressive or regressive and how it is associated with income distribution.

1.2 Problem Statement

The equity in public sector health care resource allocation has led to a major debate as an attempt to understand the causes of health sector inequities and inequities in developing

countries, where less attention has been given to the equity in health care financing and expenditure in Pakistan. Some of the health care reforms in Pakistan relate to alternative financing mechanisms e.g. user fees, public/private mix management. The extent to which, the public health sector can rearrange the patterns of inequities in health care financing has a significant role in the decline of health issues. The issue of health care service delivery is a policy practical to reshape the existing health care system in Pakistan. People with the more intense situation of health and socio-economic conditions are treated in the same way as compared to the people with better health and economic background, which creates vertical inequity and to address this problem for better policy options, this study is designed to address the equity in the financing of health care through scientifically and methodically way in case of Pakistan.

1.3 Objectives of the study

The equity-based health payments at the household level or ability to pay (ATP) is regarded as an important objective for the financing of the health care system in the country.

The objective of this study is to examine:

- Determine equity in financing and allocation of health care resources.
- Differentiate between equity and equality of healthcare financing to support the policy formulation process in the country.

1.4 Significance of the study

The issues of resource distribution among provinces have led to questioning the health care system financing across the country. The prevalence of inequitable health care

financing is the outcome of inequalities in income levels in Pakistan. To investigate deeply problem, first, it is required that the problem of inequity in health care financing should be investigated to ensure the policy actions based on the intensity of the issue.

1.5 Organization of the study

The study involves chapter 1 introduction, chapter 2 review of the literature. Chapter third includes data and methodology. Chapter 4^{th} is about the results of the study. Chapter 5 provides Conclusion and Policy Recommendations as part of this study.

CHAPTER 2

HEALTH STATUS OF PAKISTAN

The 2011 devolution of health to the provinces has created challenges as well as opportunities for action. It is envisaged that the health benefits gained through federal support can lead to more equitable health system coverage. Political devolution within Pakistan provides a formidable opportunity for healthcare systems to address issues related to systems, planning health care delivery structures, programs, and services.

Pakistan is facing a double burden of disease, the burden is higher in the poor, and many of these conditions can be controlled at relatively low-cost interventions and best practices through primary and secondary care levels. Communicable diseases, maternal health issues, and under-nutrition dominate and constitute about half of the burden of disease. In young children, diarrhea and respiratory illness remain as major killers. Maternal deaths due to preventable causes like sepsis, hemorrhage, and hypertensive crises are common. Pakistan is one of the three remaining countries where Polio is still endemic. Moreover, Pakistan has an endemicity of hepatitis B and C in the general population with 7.6% affected individuals; the 5th highest tuberculosis burden in the world has a focal geographical area of malaria endemicity and an established HIV concentration among high-risk groups. Other vaccine-preventable diseases and new emerging infections call for strengthening disease surveillance and response system uniformly across the country. Pakistan has one of the highest prevalence of underweight children in South Asia. Similarly, stunting, micronutrient deficiencies, and low birth weight babies contribute to an already high level of mortality in mothers and children.

Non-Communicable Diseases along with Injuries and Mental health issues, now constitute another half of the burden of disease, causing far more disabilities and premature deaths among an economically productive adult age group. The common underlying factors for noncommunicable diseases including lifestyle, nutrition, and smoking have not been addressed adequately. Injuries account for more than 11% of the total burden of disease and are likely to rise with increasing road traffic, urbanization, and conflict. Pakistan is ranked 7th highest in the world for diabetes prevalence. One in four adults over 18 years of age is hypertensive, and smoking levels are high (38% among men and 7% among women). The rising but still unestimated burden of cancers and COPD remain a largely unaddressed area. Poverty, low literacy, unemployment, gender discrimination, and the huge treatment gap have led to an invisible burden of mental health problems in society. Disability due to blindness or other causes is also high, and services for the disabled population are limited, including the provision of assistive devices to improve their quality of life.

The burden of disease is rendered worse by an increasing population, with Pakistan now the sixth most populous country in the world. The decline in population growth rate has been slow, and the current population growth rate of 1.9% per annum is driven by increasing age at marriage in urban areas; while the contraceptive prevalence of only 35% is far below than of other regional countries. Unmet need for birth spacing is around 25%, and the health system has to strategize to address this gap.

Pakistan has seen progress in access to health care services; however, the gains are uneven across different service areas as out of pocket expenditure is still around 70% despite having a network of (primary, secondary and tertiary) health care systems in place. Though skilled birth attendance (SBA) has improved from 18% in the late 1990s' to 58% in 2015, only one-third of women make

the required minimum number of antenatal visits and the number decreases further for postnatal visits (2% after 1-2 days of delivery). Despite the reduction in Polio cases due to high vertical accountability, the rates of routine immunization remain unacceptably low at 54%. Access to and affordability of essential medicines is low. Moreover, there are geographical disparities in coverage between provinces, districts, and rural-urban areas. Evidence shows that low-income groups are likely to have lower levels of health, nutrition, immunization, and family planning coverage.

Pakistan has a mixed health system, which includes government infrastructure, para-statal health system, private sector, civil society, and philanthropic contributors. A major strength of the government's health care system in Pakistan is an outreach primary health care, delivered at the community level by 100,000 Lady Health Workers (LHWs) and an increasing number of community midwives (CMWs), and other community-based workers who have earned success and trust in the communities. The complementary, alternative, and traditional system of healing is also quite popular in Pakistan.

The Health system faces challenges of vertical service delivery structures and low-performance accountability within the government, creating efficiency and quality issues. Largely unregulated for quality care and pricing, there is also duplication of services by the private sector. Although having the potential, the private sector contributes least towards preventive and promotive health services. The public sector is inadequately staffed and job satisfaction and work environment need improvement. The overall health sector also faces an imbalance in the number, skill mix, and deployment of the health workforce, and inadequate resource allocation across different levels of health care i.e. primary, secondary, and tertiary. To produce a quality workforce for the health sector, the quality of medical and allied education both in the public and private sectors

needs to be looked into. A range of actions is needed, acting upon the social determinants within the health and social sectors if a wider impact is to be achieved.

Government spending on health has always been less than optimal (0.6% of GDP). Most of the allocations to health are consumed by secondary and tertiary care, leaving merely 15% for preventive and primary health care. There are inefficiencies in public health spending due to weak management systems, resulting in low utilization and eventual lapse of funds. Payments are not linked to performance. Many population sub-groups lack financial protection and face the risk of catastrophic health expenditure.

The National Finance Commission is constitutionally established by the constitution which laid the foundation of equal distribution of revenues between the federal and provincial governments of Pakistan. The Constitution grants powers to the president of Pakistan to constitute the program in five consecutive years. NFC will remain the responsibility of the federal government after the 18th amendment. However, there is an increase in the financial share of provinces in the 7th NFC award.

It is important to note that no performance parameter due to a lack of collated information system was used to augment financial share for provinces. Similarly, resource tracking through national health accounts is crucial for any health system to monitor the flow of financial resources. Better performance and responsiveness of the health system could not be achieved due to a lack of information on health spending in Pakistan. The compilation of provincial health accounts is a key challenge in the wake of recent reforms to prioritize expenditures and increase their own revenues.

The contribution of GDP to health in Pakistan is 0.25%, which is insufficient to meet the non-development expenditures of vertical health programs. To promote essential healthcare packages through universal coverage, countries have to allocate the WHO target of 5% GDP expenditure on health. Provincial governments with elevated financial shares need to strategize reallocation of respective health expenditures. In the absence of national health accounts, it would be a test for the provinces to reset priorities for primary, secondary, and tertiary care services. The mix of the public-private health system in Pakistan has promoted out of pocket payments which put financial risk on households. Insurance mechanisms such as social health insurance for the formal sector and social protection strategies for the informal sector are direly needed to attain universal coverage. Provincial governments are facing the challenge of outlining pro-poor strategies in this transitional phase of reforms to protect the poor from catastrophic expenditures.

CHAPTER 3

LITERATURE REVIEW

3.1 Overview of equity

Across the globe, there has been a growing consensus that large and avoidable gaps in health status among individuals and groups are morally unacceptable. These concerns originate from the belief that health care is a basic right and its receipt should be based on need rather than on one's ability to pay. This segment creates a question of equity and fairness usually based on inequality in the distribution of resources for the health care system.

The primary motivation of this study is to find out whether scarce resources in the health sector in Pakistan are being equitably utilized. Studies done in Sub Saharan Africa indicate wide inequities in health care financing and expenditure and utilization of health resources on items that favor high- income groups Barnum and Kutzin (1993).

In the real-world, health care financing is delivered through the number of systems, which often changes with changes in political government (Wagstaff, 2000).

There are a few different kinds of motivations behind equity. Equitable health care has multiple policy implications. Firstly, the resource distribution decision is taken on the basis of social justice, not on the cost of production and supply for the community. The most needed are served first and Justice requires a pattern of provision to ensure the equitable distribution of resources. Thirdly, the distributional 'rules' resulting from the two approaches are likely to be different (Culyer, 1990).

The study of Whitehead (1992) distinguished that the term “inequity" has moral dimensions. Health inequities are differences in health service provision across different

income groups. It is one of those social elements, which cause indulgence for the social groups that are already more advantaged. The provision of resources categorized according to the social position between groups of people, individuals may be grouped by their income, or by characteristics of their occupations, education, or geographical location, or by their gender, race/ethnicity, or religious group.

3.2 Equity in health care financing

The equity in health care financing means that the financing of health care is done according to the ability of these people to pay for health care. Vertical equity is defined as the provision of healthcare to the People who need greater healthcare received more healthcare services, which is a pro-need characteristic of healthcare distribution. It is difficult to measure and also difficult to interpret. Vertical equity is less informative than horizontal equity (Braveman, P & Gruskin, S 2003).

According to Macinko, J et al (2012) the example of horizontal equity in health care can be found in brazil. Horizontal equity is defined as those people who have similar health needs should have similar access to health care services. Horizontal equity can also be defined as equal treatment of people with equals, denoting an equalization of the burden or the risk, which may not be a good policy in some countries. For both interpretations, it is importation to define "Ability to Pay", which should be measured by the level of income. The last definition of the ATP is more accurate, however keeping in view of data limitation the first definition is used in the empirical work in most studies.

Horizontal equity can also be defined as those who have equal ability to pay actually make equal payments regardless of gender, occupation, age, marital status, and region. Basically, it means that the different levels of risk faced by people living in the same

society should be considered during the designing of policy for health care services (Mooney, 1987).

There are various reasons for Horizontal inequity. In a tax-funded system, horizontal inequity can be a result of inconsistency in the personal income tax system of the country (e.g., certain tax relief). In a well-organized social insurance system, there are different insurance packages for different occupational groups. In developed countries horizontal equity is regarded as an important issue in financing healthcare, it does not seem to concern 'health' planners in developing economies (Hurst, 1991).

Equity in health care access and financing healthcare is an important factor for the health of common masses. Equity in healthcare is the fundamental element of the health policy of Pakistan. For achieving equity in healthcare special attention should be paid to the older population (60 years or more) for easy access to seek healthcare.

For achieving the goal of equity in health, both in developed and developing countries it is considered that equity in healthcare utilization is an essential step. The decision to seek healthcare depends on the behavior of individuals and choices. It also depends on the socio-demographic background of the individual through which he decides to choose formal medical care or informal depending on his ability to pay.

World Health Organization evaluates the health system performance on the basis of the need gaps between access to rich and poor in the target population of the program. The evaluation of programs is made subject to the nature of it operation. According to the resolution of the World Health Assembly (WHA) 2005 it is stressed upon the fact that healthcare should be accessible to all without suffering from financial hardship The resolution of World Health Assembly (WHA) aims that to help and assist developing

countries to make their health system accessible to all. In the presence of inequality in access to health services, mostly the poorest and disadvantaged groups of the population are affected. Studies reveal that horizontal equity is essential for making the healthcare delivery system more efficient (WHO, 2010).

Equitable financing is based on the theory that each household faces cost risks if they fell ill or get sick. The cost of illness to access the health care services are distributed according to the ability to pay rather than the risk of illness. This also refers to vertical equity. The fundamental goal of the healthcare system is to ensure financial protection. Financial protection is the important element of universal health coverage which aims at ensuring health services to the people with the suffering of financial catastrophe. Low and middle-income households face debt issues if they meet serious illness. In Pakistan, catastrophic healthcare expenditures are a major cause of poverty (WHO, 2010).

Equity in access to healthcare is the main problem that is often focused on studies of public health policy and health care services all across the world. It is the most debatable issue especially in developing countries including Pakistan, that the inequality in access to health care is a major health policy challenge and people around the world are working to bring to the optimal stage of care for society. Due to wide inequalities in the utilization of health services those with the greater need for health services are not getting an equitable share from health services often they have to contribute to the utilization of health services.

The study reveals that apart from economic inequality, differences among groups, gender and region is also very common. Therefore, inequality and inequity in the use of

healthcare also exist. Residents of rural areas and the older population of the country are the disadvantaged groups regarding health care utilization.

A study conducted through primary data: collected from five countries established a new dimension in health care equity studies. The study argued that there is an issue of roads and transport for people to access health care facilities. The study found that there exists a significant difference between low and high-income individuals (Schoen and Doty 2004).

In Pakistan, there is a huge breach concerning the very rich and the very poor. There is a vast imbalance of health care services between rich and poor. 30% of the total population lives in absolute poverty. Mostly Public Hospitals are not providing satisfactory healthcare to the patients, therefore patients go for a private hospital to seek health care which is very expensive for poor people.

Furthermore, looking to government spending on health it is quite obvious that a very insignificant percentage of GDP is allocated for health care financing at the national level to make its population's health improved and 76% goes out of pocket for health expenditure in Pakistan. As a result of catastrophic health expenditure, the poor become poorer. Furthermore, because of the shortage of finance in Pakistan, the government spent a low amount on healthcare, and the poor have no choice to pay the health cost whether they afford it or not. Often they have to sell their assets for seeking health care services.

In Pakistan, the majority of hospitals are in urban areas and people of rural areas have to depend on Basic Health Units (BHUs) and Rural Health Centre (RHCs). Due to the shortage of staff and essential medicines, almost the majority of these health facilities are

non-functional, therefore they have no choice but to go to private doctors. This is why they spend a huge amount on health care and become poorer and malnourished.

Moreover, on one side, the disparities in resource distribution across people with different level of income is one challenge but on the other side, the inequitable distribution or allocation of resources has led to the issue of unequal distribution of health infrastructure in Pakistan. In Urban areas, almost all types of resources and facilities for patients are accessible but it is not the case in rural areas and for more needed ones. The data shows, that public health facilities among different provinces of Pakistan and that is the reason there is a great difference among health indicators in all four provinces of Pakistan (Kurji, 2016).

The constitutional changes implemented under the 18 Amendment redefined health-related mandates at three levels: federal, inter-provincial, and provincial. Federal and inter-provincial roles, which can also be described as 'national' were explicitly outlined in two of the legislative lists of the Constitution. The only ambiguity in relation to the healthcare sector between the federal and provincial prerogatives arose in the context of one of the entries – drugs and medicines.

The focus should now be to look forward. Firstly, appropriate institutional arrangements need to be made. Two kinds of institutional entities are needed at the federal level; one that is representative of the federation and allows effective inter-provincial linkages and coordination; and another which is purely federal in nature. At the provincial level, there are several entities such as secretariats, directorates, and reform units whose roles overlap. As the provinces are now responsible for healthcare and public health, they should develop sustainable institutions with the capacity to plan and oversee reform.

Thirdly, it must be appreciated that 'devolution' or any other institutional reform will not bear fruit if the core systemic constraints facing the state are not addressed. Pakistan faces a number of challenges in the socioeconomic and human security spheres. Without paying attention to resolving core issues such as collusion, graft, lack of accountability, patronage, inattention to merit, arbitrariness in decision making, and policy vacillation, devolution cannot come to fruition. (Nishtar, 2014).

Previously analyzed data of late 1980 was used to update Irish results using analytical techniques for measurement of equity in healthcare financing. Kakwani's progressivity index was calculated using household survey data from 1987/88 to 2004/05. Results reveal that the overall Irish healthcare financing system was progressive. However, to interpret the results of private sources of financing was complicated due to the complexity of the healthcare financing system. Due to this reason, the problem is not unique with Ireland as found in this paper but it is also the same case with other healthcare systems also (Samantha, 2010).

To assess inequity in healthcare financing in Nigeria, graphical and geometric analyses were used in the study. In Nigeria, there is a mixed method of financing but the dominated method of health care financing is Out of pocket payments. However, the degree of income inequality still remains high. The method used for the study was the Kakwani Progressivity Index (KPI) using the Nigerian Living Standard Survey data conducted in 2004. The study shows that health payment for the lower boundary is regressive whereas for the upper boundary it is found progressive. However, the result of the study shows that the progressive system arising in Nigeria due to spending patterns of rich people in seeking health services abroad (Lawanson et al., 2016).

Household Expenditure Survey Malaysia 1998/99 was taken for Cross-sectional analyses using Stata statistical software package. Kakwani's progressivity index was used for assessing inequality, the progressivity of each finance sources, and the whole financing system. The result shows that in Malaysia tax-financed system was slightly progressive. Four financing sources were found progressive (direct taxes, private insurance premiums, out-of-pocket payments, contributions to Employee Provident Fund), and a regressive finance source (indirect taxes). In Malaysia, there are two-tier health systems. One public sector which is heavily subsidized and the other is the private sector. For an in-depth understanding of equity impacts, the case of Malaysia is very helpful for policymakers to shape health financing strategies for the nation. (Chai et al., 2008).

The study focuses on proportional health financing policies. A Cross-sectional database analysis was performed subject to Household Expenditure Survey Malaysia, the study found equity is horizontal in nature (Chai et al., 2008).

CHAPTER 4

DATA and METHODOLOGY

4.1 Methods

The study is a quantitative designed case study analysis of Pakistan. Socio-economic characteristics of households and the data for healthcare payment is taken from HIES (2015-16). The average values of Household-level consumption spending and total payment made for healthcare are estimated and the frequency representative of the catastrophic health payments concentration is also the author's calculations. The study includes calculation of the concentration index, Kakwani index, and Gini coefficient for each source of the healthcare financing at the household level, including the food expenditure at the household level, which is also the indicator or proxy of indirect taxes and oops payments.

4.2 Data collection

This study based on secondary data. The data primarily include demographic and expenditure data of households. The Data of household monthly income and taxable everyday consumption is obtained from the comprehensive Survey of Pakistan PSLM (Pakistan social and living standards measurement) and HIES (household integrated economic survey). The sample of 2033 households is selected for the study on equity in health financing at the household level.

4.3 Calculating the progressivity

There are two major types of equity reported by various researchers across the world. First, is horizontal equity, which focuses on equal treatment of all the people in the same

circumstances and the second type is vertical equity, which focuses on the different treatment of people in different circumstances. The second one is more realistic and practical in Pakistan and other countries.

The progressivity calculation is a well-known tool, which is used to measure vertical[1] equity in healthcare financing. For this purpose, the study uses an index, which is developed using the Nanak Chand Kakwani Formula. This is the most frequently used measure known as the "Kakwani Index of progressivity".

The index's value lies between −1 and 1. It can be -1 at extreme regressively and it can be +1 as extreme progressivity. In other words, a negative index value proposes regressively a smaller share of income is spent on health care as income increases across households, and a positive index value advocates progressivity, which means that a larger amount of household income is spent on health care as income increases across households. The index, P, is calculated as

$$P = CI - GC$$

Where CI is representing the concentration index for health-care payment at the household level and GC is a short form of the Gini coefficient to measure the ability to pay. To determine the overall progressivity of the health-care financing system, the Kakwani index needs to be weighted with health-care payment known at the household level as a share of total healthcare expenditure at the household level.

[1] equity. This is a principle, which states that people should be treated on the basis of their needs because some people need more attention in some specific time periods.

4.4 Concentration index

World health organization recommends the use of a concentration index to assess the degree of equity of health financing across different households with different socio-economic backgrounds. The concentration index is demarcated by the area between the concentration curve and the line of perfect equality, also known as a straight line between income and percentage of the population possessing that income. The value of this index falls between minus one to plus one (-1 to +1), which can be interpreted as, if the value is positive it means that concentration of OOPs payment is high in rich people and vice versa. The value of the Concentration curve shown as points is the illustration of the distribution of Oops payments across all the given population with the population ranked by increasing magnitudes from very poor to very rich based on a living standard of the household. A positive value indicates that Oops payments are at frequency among the richest portion of the population.

4.5 Gini coefficient

To measure inequity or inequality in health care resource allocations, the world bank has identified the Gini coefficient as one of the most reliable and strong indicators. The researchers across the world have cited the Gini coefficient to investigate the impartiality in health care financing. This index provides a value between 0 to 1, where zero means high or perfect inequity in health care resource allocation, and 1 indicates high-level equity in health care resource distribution. The value of the Gini coefficient if less than 0.2 recommends that there exist low inequities and if the value is between 0.2 and 0.3, it means that there exists only a moderate level of inequities. Finally, if the value is

between 0.3 and 0.4, it advocates that there are high inequities, and the higher value than 0.4 indicates extreme inequities in health care financing (Xianjing et al., 2017).

4.6 Catastrophic health expenditure

It is one of the easily understood proxies of household-level health payments, which affects the home economy and it pulls households towards poverty. This study investigates the frequency and strength of the burden face by households, which are disastrous to trap households in poverty. The household faces catastrophe when the expenditure on health accedes the saved money after spending on food and other necessary needs of the household. When this ratio cross 40 percent it is called catastrophe (Xu K et al., 2003). After paying for schooling of kids, utility bills, and rents from income, there is nothing left in most of the cases, for example, say 10000 remains saved and, in this situation, total health expenditure must be under 40 percent of this remaining amount otherwise household is facing the health catastrophe. Oops < 40 % of non-subsistence expenditure is safe and OOPs > 40 % of non-subsistence expenditure is Catastrophe.

4.7: Measurement of important variables.

The following variables and proxies are used to assess health care financing at the household level.

1) **Out-of-pocket health expenditure OOPs payments**

   The payments are paid for accessing or availing health care services at the household level. It includes all the expenditures associated with the health of the person. Calculating the OOPs payment of household, this study has included the consultation

fees of the doctor, cost of buying the medication, and all types of hospital bills plus the transportation cost for hospital visits and expenditure on patient food. The payment recovered through insurance is deducted from OOPs payment because it cannot be the part of OOPs once it is paid by any source other than the pocket.

2) **Household consumption expenditure (exp).**

The payments, which are made to access all kinds of services and products to fulfill Household daily needs are known as household consumption expenditure. It includes payments from food to all types of service costs. It also includes the cost of daily water used and waste collection.

3) **Food expenditure.**

The expenses for daily food consumption plus the monetary value of food products produced on their agriculture fields at household level farming, which are consumed by the household.

(iv). The household's Ability to pay (Atp).

The Ability to pay ATP means that the household is able to spend money after fulfilling all the basic needs of daily life. if the required payments for supporting the very basic needs at the household level are less than the food expenditure of a household, this means that the person is surviving below the poverty line. This type of result is most of the time misleading due to underestimation caused by excluding the subsidies and food sources that are not directly paid in cash. In this case, the ability to pay will be Atp $=$ exp$-$se if se $\leq$ food or Atp$=$ exp$-$food if se $>$ food

(v). **Catastrophic health expenditure (cata)**

It is the most undesirable condition, which indicates extreme poverty or sudden poverty and the Catastrophic health expenditure occurs in times of long term illness it refers to a situation when

cata = 1 if oop ctp ≥0:4

cata = 0 if oop ctp < 0:4

where cata is Catastrophe, OOP is out of pocket and ctp is capacity to pay or non-subsistence expenditure capacity of a household.

4.8 Methodology

The important point of the study is to support the notion that healthcare supported according to the ability of a person to pay (ATP) refers to equitable health care financing. To investigate whether or not the health payment challenges or subsidizes the goals set for equitable financing, it is very important to examine the capacity to pay and health care expenditure at the household level.

It reveals the extent of inequality in paying for health care services between households of unequal ATP. The progressive health payment accounts high percentage of ATP as ATP increases across households. A progressive system means that the individuals or households are paying with a high proportion in financing health care as ATP increases. The health care financing system is considered proportional if households with different ATP are spending the same proportion of ATP in financing health care at the household level. This research study has used Kakwani's progressivity index is a tool of assessment for equitable financing in health care.

CHAPTER 5

RESULTS AND DISCUSSION

Introduction

The chapter is based on results drawn from the data, which is collected from different sources with respect to different index measurements. The chapter starts with a descriptive analysis of data, followed by the indices, and ends with regression analysis.

Table 5.1 DESCRITPIVE STATISTICS OF IMPORTANT VARAIBLES

Statistics	HH Size	TOTAL_HH_EXP	FOOD_EXP	INCOME_HH	OOPS
Mean	5.767306	26254.29PKR	11888.38 PKR	33112.50 PKR	6958.55 PKR
Median	4.027500	17475.00 PKR	8500.00 PKR	22000.00 PKR	1740.00 PKR
Maximum	10.556287	315200.0 PKR	80000.00 PKR	97000.0 PKR	200200.0 PKR
Minimum	2.00	3660.00 PKR	4100.00 PKR	2200.00PKR	1000.00 PKR
Std. Dev.	0.609770	26727.22 PKR	12874.04 PKR	46284.79 PKR	15475.64 PKR

The results of the study show that the average household size is 5.76. the maximum household size in the data is 10.55 members and the minimum is 2.00 members. The results of the study indicate that maximum household expenditure counts for 315200 PKR each month and the minimum expenditure is 3660.00 rupees, while on average every household has spent 26254.29 PKR on health financing. The results of the study indicate that the food expenditure of a household is less than the health expenditure at the

household level. The health expenditure at the household level is twice greater than the food expenditure of households in Pakistan. The average income of the household is 33112.50 per month and it is quite interesting to see that oops payments are less than food expenditure and overall health expenditure in Pakistan. This indicates that people are also receiving health financing from other institutions, which supports the health sector in Pakistan.

Table 5.2 Average household size distribution of household across provinces and regions

Province/area	Urban HH size	Rural HH size
Khyber Pakhtunkhwa	7.51	7.72
Punjab	6.41	6.66
Sindh	7.81	7.92
Baluchistan	7.84	7.95
Gilgit Baltistan	6.11	6.19

SOURCE HIES 2015-16

The results of the study indicate that highest average household size is prevailing in Baluchistan rural areas, which is 7.95 members per household and it is followed by the household size of Sindh, which is 7.92 in rural areas of the Sindh. The average household size in KP is 7.51 in urban areas and it increases towards rural areas of all the settlements. In Punjab average household size in rural areas, 6.66 is higher than in urban areas which are 6.41. The lowest household size prevails in GB urban settlements, which is 6.11 and it increases from urban to rural settlements as well. The data also tells us that the smallest

household size in urban areas is present is GB while the biggest is in Baluchistan and the same position is in rural areas with GB and Baluchistan.

Table 5.3 Average Income distribution also indicates ATP

Province/area	1st quantile	2nd quantile	3rd quantile	4th quantile	5th quantile
Khyber Pakhtunkhwa	16050 PKR	25827 PKR	31291 PKR	45819 PKR	59201 PKR
Punjab	17300 PKR	24910 PKR	30716 PKR	39810 PKR	61982 PKR
Sindh	19910 PKR	23018 PKR	29101 PKR	40122 PKR	59187 PKR
Baluchistan	17100 PKR	22911 PKR	31082 PKR	38900 PKR	52191 PKR
Gilgit Baltistan	17900 PKR	23732 PKR	27101 PKR	37819 PKR	52100 PKR

The results of the study indicate that average income in the first quantile is 16050 PKR in KPK, which is two times lower than the 4th quantile and it is three times less than the 5th income quantile in the same province. The above table also shows that average income in the first quantile in KPK is the lowest among all provinces. The above data also indicates that Sindh has a higher Ability to pay in the first quantile of the income distribution while KPK has the lowest ability to pay. The mean income of households at 2nd quantile is 25827 PKR per month in KP, which is 100 percent less than the average income of a household in the 5th quantile. In 2nd quantile lowest ability to pay is in Baluchistan and the highest in KPK.

The mean income of a household at first quantile in Punjab is 17300 PKR is three-time lower than the 5th quantile of the same province which is 61982 PKR. The results of the

study indicate that the average income of the first quantile is highest in Sindh and the average income of the 5th quantile is highest in Punjab.

The dispersion of income among the same province is uneven, which indicates a high level of inequality across and within province income at the household level. Gilgit Baltistan has the lowest income across all quantiles, expect the first and second quantile income, which accedes the first quantile income of Punjab and Baluchistan. The highest income inequalities are prevailing in Punjab, Sindh, and GB comparatively, which also indicates the inequity to access health care financing at the household level.

Table 5.4 Food expenditure distribution by province and quantile

Province/area	1st quantile	2nd quantile	3rd quantile	4th quantile	5th quantile
Khyber Pakhtunkhwa	6650 PKR	15822 PKR	20191 PKR	25819 PKR	36201 PKR
Punjab	7790 PKR	14413 PKR	20216 PKR	29810 PKR	30082 PKR
Sindh	9470 PKR	13212 PKR	22301 PKR	26122 PKR	31187 PKR
Baluchistan	7690 PKR	12210 PKR	21082 PKR	28900 PKR	35191 PKR
Gilgit Baltistan	7270 PKR	13722 PKR	22121 PKR	27819 PKR	34100 PKR

The results of this study indicate that KP has the lowest food expenditure in first income quantile and highest in 5th income quantile. The difference in first and 5th income quantile for food expenditure in KP shows high inequality and expenditure of 5th quantile accedes 500 percent over the first income quantile, which indicates within province inequalities. GB and Baluchistan have the second-lowest food expenditure at first income quantile and

Sindh has the highest food expenditure in first income quantile among all the given regions and provinces in Pakistan. The food expenditure of KP second income quantile remains on top of all. In the fourth income quantile, Punjab households have the highest food expenditure and in the last income quantile, KP has the highest followed by the Province of Baluchistan and GB in Pakistan. The result provides evidence about inequalities within provinces and across provinces, which indicates that as income grows people spend more portion of the money on food. This can be an indicator of indirect taxes, which is used in the Kakwani index for sensitivity analysis. The massive burden of taxes has increased the prices, which in equity context refers to horizontal equity. The equity in health care financing has become an achievable question of intention to do for policymakers and government. After the 18th amendment, it has become possible for the province to distribute resources equitably with in province once it received from the federal.

Table 5.5 Monthly Average Health expenditure by province and quantile (OOPs)

Province/area	1st quantile	2nd quantile	3rd quantile	4th quantile	5th quantile
Khyber Pakhtunkhwa	1280 PKR	5002 PKR	7191 PKR	8819 PKR	10201 PKR
Punjab	1600 PKR	3013 PKR	8000 PKR	9990 PKR	10082 PKR
Sindh	1770 PKR	3212 PKR	7301 PKR	9122 PKR	16187 PKR
Baluchistan	1690 PKR	4210 PKR	8082 PKR	9900 PKR	16191 PKR
Gilgit Baltistan	1900 PKR	5662 PKR	8121 PKR	9819 PKR	14680 PKR

Contribution to finance the health care expenditure from household side KPK is lowest in the first quantile and GB is the highest which is 1900 PKR. The average household size in KPK is higher than GB. There are more chances that they may face a catastrophic situation. In 2nd quantile, Punjab is lowest while GB is the highest. In KP the health care expenditure is increasing with an increase in income level. Sindh has the highest health care expenditure in 5th quantile, while GB has the highest in the first quantile. Out of pocket pays for hospital and health care is minimum in KP at first quantile. The results of the study show that oops increase as income increases in all provinces with a different ratio. This also indicates the prevalence of disease incidents across different regions or provinces. The difference between the first quantile and 5th quantile is highly significant. The highest difference between the first and 5th quantile is in Baluchistan province while the lowest difference in the first and 5th ` is in Punjab. Overall data shows that average health expenditures are increasing with the increase in their income.

Table 5.6 Percentage of people facing Catastrophic health expenditure

Province/area	1st quantile	2nd quantile	3rd quantile	4th quantile	5th quantile
Khyber Pakhtunkhwa	5.55	4.94	4.90	3.20	2.12
Punjab	7.00	6.30	4.30	3.00	2.32
Sindh	7.68	5.12	4.55	3.20	1.23
Baluchistan	7.53	6.21	5.32	4.00	3.11
Gilgit Baltistan	10.55	7.42	6.15	5.19	3.00

cata = 1 if oop ctp ≥0.40 and cata = 0 if oop ctp < 0.40

The results of the study indicate the percentage of people facing catastrophic changes after health care payments in a different province with respect to income level. The results indicate the percentage of households, with health care payments over 40 percent of their total monthly income. A household pays more than 40 percent income for health care is facing Catastrophe and poor household is more likely to face the stage as income level is not sufficient for other expenditure to meet the daily needs. The results show that a high percentage of people at first income quantile are facing catastrophic health expenditure because the income level of the household is lower after payment for health care financing there are higher chances of facing extreme conditions with respect to home economy. As the income increase across households, the percentage of people facing catastrophe declines. KP as the lowest percentage of people in the first quantile, facing economic catastrophe while GB is facing the higher percent. In the second quantile, 4.94 percent of people of KP are facing catastrophe which is the lowest while again GB is facing higher which is 7.42 percent. In the third quantile, Punjab is lower with 4.30 percent While GB is higher and remained the same in the fourth quantile. In the fifth quantile, Sindh is lowest at 1.23 percent while Baluchistan is higher with 3.11 percent.

GB has the highest percentage of people, who's health expenditure is over 40 percent of their total income.

Table 5.7 Concentration index/Lorenz curve Gini Coefficient for OOPs

Province/area	Urban	Rural	Total
Khyber Pakhtunkhwa	0.21	0.1	0.11
Punjab	0.28	0.21	0.26
Sindh	0.12	0.33	0.20
Baluchistan	0.18	0.42	0.32
Gilgit Baltistan	0.10	0.51	0.32

This Gini Coefficient shows health care financing inequity across households. To understand the results of the Gini coefficient, it is required to understand the Lorenz curve, which is the line of perfect equity. It has the values between 0 and 1 with zero indicating perfect equity. It is a commonly used measure of inequality in income distribution, which led to inequity of resource distribution. The Gini coefficient ranges from 0 to 1; a higher Gini coefficient indicates greater inequities means greater inequity indirectly. The value of less than 0.2 suggests low inequities, indirectly indicates high-level inequity in health care resource distribution, which can be seen in the case of Sindh, Baluchistan, and GB in the Urban section of the results.

The value between 0.2 and 0.3 suggests moderate inequities, which is shown in the table above for KPK and Punjab in the urban section of the results. The values of Gini indices between 0.3 and 0.4 suggest high inequities in the case of Balochistan and GB in the rural section of the table. A value of higher than 0.4 indicates extreme inequities, which is not

applicable in this case or data set. The discussion made on inequalities is closely associated with inequities. The higher is the inequalities, higher will be inequities in health care financing at the household level.

Table 5.8 Kakwani index score by province and component of health care financing

Province	Indirect Taxes	Direct Taxes	ATP	Oops
Khyber Pakhtunkhwa	0.0065 (0.13)	0.11 (0.04)	0.12(0.03)	0.001(0.05)
Punjab	0.005 (0.120)	0.102 (0.052)	0.170(0.11)	0.003 (0.04)
Sindh	0.02(0.17)	0.19 (0.03)	0.19 (0.01)	0.1(0.05)
Baluchistan	0.0253 (0.12)	0.1802 (0.06)	0.19(0.01)	0.04 (0.02)
Gilgit Baltistan	0.02 (0.21)	0.12 (0.02)	0.21 (0.01)	0.02(0.09)

() significance at 5%

The results show the progressivity of the health financing system at the household level, which is assessed by Kakwani's indices as shown in Table 4.8. these indices values are calculated using the convenient regressions. The Kakwani's index is interpreted in terms of its directions (positive or negative). it is substantial and its implications can be seen as if the sign is positive for these four Kakwani's indices, it reveals that the progressivity of all finance sources. The results of the study shown in table 4.8 show Kakwani indices score across all the provinces in Pakistan for different health care financing sources and components at the household level.

The positive values indicate that the whole health financing system was progressive regardless of income growth across quantile. There is no negative value, which indicates no regressive, but all indicate progressive health care financing. This indicates that

household in Pakistan contributes significantly progressively towards direct, indirect taxes and out of pocket payments for health care financing across all the provinces.

Chapter 6

Conclusion and Policy Recommendations

6.1 Conclusion

The study investigates the progress of health care financing in Pakistan using descriptive statistics and the indices of Kakwani and it shows that the results shown in the table indicate that ability to pay across provinces does not differ significantly but within provinces, it is significantly varying across households. The study found that Baluchistan has the lowest ability to pay for health care financing at the household level at first income quantile. The study found that indirect taxation has less progressivity among all the other components in healthcare financing sources. Health care financing at the household level is less equitable in Pakistan. It is critically important to increase access to public health facilities in Pakistan. Equitable health financing provides according to the needs of households in different provinces but in Pakistan, inequalities exist in health financing.

6.2 Policy Recommendations

- A steady and purposeful stewardship role of the provinces should bring about structural changes in the health system. It is envisaged to have sector-wide strategic planning, regulation, purchasing, and financing and moving towards a separation of service provision from its stewardship function.
- Health services reforms that are already underway should focus more on the performance strengthening of government-provided services. Innovative

management models of PHC are envisaged to be tried out with an emphasis on alignment with preventive health targets.

- The private sector should be seen as a partner in healthcare delivery and should be engaged/regulated through appropriate mechanisms.
- The researcher recommends the government to Promote the equitable use and provision of services relative to the need of the population.
- The improvement in the transparency and accountability of the health system in the country can help to achieve the goal of equitable resource distribution. .com
- Increasing share of public sector budgets commitment for governance strengthening, and establishing dedicated structures within provincial and federal ministries. Both government and private service providers will be involved in performance accountability and target-oriented service delivery arrangements.

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