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HEALTH EQUITY AND FINANCIAL PROTECTION REPORT

MONGOLIA



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The Health Equity and Financial Protection reports are short country-specific volumes that provide a picture of equity and financial protection in the health sectors of low- and middle-income countries. Topics covered include: inequalities in health outcomes, health behavior and health care utilization; benefit incidence analysis; financial protection; and the progressivity of health care financing. Data are drawn from the Demographic and Health Surveys, World Health Surveys, Multiple Indicator Cluster Surveys, Living Standards and Measurement Surveys, as well as other household surveys, and use a common set of health indicators for all countries in the series. All analyses are conducted using the health modules of the ADePT software. Also available are Health Equity and Financial Protection datasheets that summarize key measures of equity and financial protection.

The most recent versions of the Health Equity and Financial Protection reports and datasheets can be downloaded at www.worldbank.org/povertyandhealth.

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List of Abbreviations and Acronyms

ARI	Acute respiratory infection
BIA	Benefit-incidence analysis
CPI	Consumer price index
DHS	Demographic and Health Survey
DRG	Diagnostic related groups
FGP	Family group practice
GDP	Gross domestic product
GHE	Government health expenditures
GOM	Government of Mongolia
MCH	Maternal and child health
MDG	Millennium Development Goals
MOH	Ministry of Health
HSES	Household Socio-Economic Survey
MICS	Multiple Indicator Cluster Survey
NHA	National Health Accounts
PPP	Purchasing power parity
SHI	Social health insurance
THE	Total health expenditure
VAT	Value added tax
VCT	Voluntary counseling and testing
WHO	World Health Organization
WHS	World Health Survey

HEALTH EQUITY AND FINANCIAL PROTECTION IN MONGOLIA

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Executive Summary

This report analyses equity and financial protection in the health sector of Mongolia. In particular, it examines inequalities in health outcomes and health care utilization; benefit incidence analysis; financial protection; and the progressivity of health care financing. Data are drawn from the 2005 Mongolia Multiple Indicator Cluster Survey and the 2007-08 Mongolia Household Socio-Economic Survey. All analyses are conducted using original survey data and employ the health modules of the ADePT software.

Is ill health more concentrated among the poor?

Yes. In general, ill health is more concentrated among the poor in Mongolia. Yet, this assessment is solely based on child health indicators due to the lack of available indicators of adult health. Prevalence of stunting, underweight, and diarrhea are all significantly concentrated among the poor. The ARI indicator is neither concentrated among a group in the population nor statistically significant.

Do the poor use health services less than the rich?

Mostly pro-rich with some notable exceptions. Of the selected maternal and child health (MCH) interventions, both significant indicators (namely immunization and ARI treatment) are utilized disproportionately by the better-off) while other interventions are not significant. The only selected adult preventive health indicator available in the dataset, namely testing and counseling for HIV, is slightly pro-rich. All outpatient care, with the exception of the combined indicator of soum hospitals and family group practice, is concentrated among the better-off, regardless of whether the care is public or private. Inpatient care is significantly pro-poor at soum hospitals and family group practices, and moderately pro-rich at aimag and central level hospitals.

Is the distribution of government spending on health pro-rich or pro-poor?

Slightly pro-rich. Government spending on both outpatient and inpatient care at the aimag and central hospital level is clearly pro-rich, regardless of the method of benefit incidence analysis used. Inpatient care at soum hospitals and FGP, on the other hand, appears to be pro-poor. The assessment of the distribution of government spending at outpatient soum hospital / family group practice level depends on the method of benefit incidence analysis employed: it is pro-poor under the constant unit cost assumption, not significant under the constant unit subsidy assumption and pro-rich under the proportional cost method. Overall, the distribution of government spending is found to be slightly pro-rich, both when using the second method (constant unit subsidy assumption) and, most strongly, when using the proportional cost method.

What is the effect of out-of-pocket payments on household financial well-being?

Moderate. Only about 10 per cent of households spend more than 10 per cent of total household consumption on out-of-pocket health payments and just over one per cent spent more than 1.3 per cent. Using the alternative nonfood measure, around 16 per cent of households spend more than 10 per

cent of *nonfood* consumption on out-of-pocket payments just 3 spend more than 40 per cent. Also, catastrophic payments are highly concentrated among the wealthy. The impoverishing effect of health spending is substantial, though. Using the US\$2.00 a day poverty line, one finds that health spending contributed to a 12 per cent increase in the incidence of poverty and a 14 per cent increase in the poverty gap. Using the national poverty line of 750,000 tugrik, one finds that health spending contributed to a 7 per cent increase in the incidence of poverty and a 9 per cent increase in the poverty gap.

Is health financing progressive or regressive?

Mildly progressive. Direct taxation and out-of-pocket payments, which together finance nearly a quarter of the health system, are both found to be very progressive. Among indirect taxes, VAT is found to be mildly regressive, excise taxes are progressive and the results for import duties are not significant. Overall, the health financing system is mildly, and significantly, progressive.

1 Mongolia's health system

This section provides a brief overview of Mongolia's health system, focusing on features that are likely to be especially salient for equity and financial protection.

1.1 Equity and financial protection as policy goals

The key objectives of the Government of Mongolia, as outlined in the Health Financing Strategy (approved in July 2010), are to improve the health of the people, provide financial protection for individuals, and support economic growth and poverty reduction. It aims to do so by setting up a health financing system that promotes accessibility to, and efficiency of, health services based on people's health needs. The strategy consists of three sub-objectives which are:

- health care financing to promote equitable use and provision of services relative to the need for such services
- health care financing to improve the quality of health care
- health care financing to improve efficiency of health care services

The objectives of the Health Financing Strategy are based on the Health Sector Strategic Master Plan 2006-2015, endorsed by the Government of Mongolia in 2005. The goal of the Strategic Master Plan is to improve the health status of all the people of Mongolia, especially mothers and children, through implementing a sector wide approach and providing quality services that are responsive, equitable, pro-poor and client-centered.

1.2 Health financing system

Health expenditure

In 2009, Mongolia spent 4.7 per cent of its gross domestic product (GDP) on health. In terms of total health spending, the country compares positively among countries of similar economic development. A large portion of total health spending is supported by the government budget. The government's allocation for health was 3.45 per cent of GDP in 2007 and 3.05 per cent in 2008.

Table 1.1: Health expenditure data, 2009

Indicator	
Health expenditure as share of GDP	4.7%
Total government expenditure as share of GDP	38.3%
Government expenditure on health as share of total government expenditure	10.5%
Government expenditure on health, per capita	US\$75 (current), US\$167 (PPP-adjusted)
Government expenditure on health as share of total health expenditure	85.2%
Out-of-pocket expenditure on health as share of total health expenditure	11.5%

Source: WHO National Health Accounts database (2009)

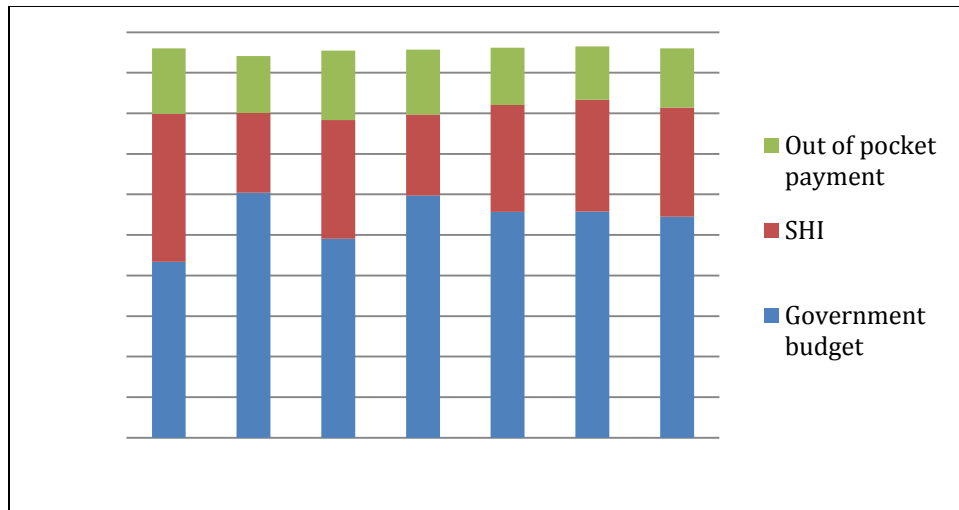
Decentralization and centralization

Mongolia has a highly centralized public administration system. As result, the majority of budget allocations come from the central government or state budget. The health system does recognize the importance of primary health care providers as the first point of access to health care for the population, especially the poor and vulnerable. There have been attempts to use risk adjusted capitation formulae to allocate funding to primary health care providers, such as family group practices (FGP) (since 2000) and soum hospitals (since 2008).

Revenue-raising/sources of funds

Health care is sourced primarily through public prepaid schemes, which are the government budget revenue and social health insurance scheme. In 2007, these prepaid schemes accounted for 83.3 per cent of total health expenditures (THE) whereas government budget revenue accounted for 55.8 per cent of THE. Much of the government budget revenue and SHI revenue goes to health facilities, namely primary health care providers, secondary and tertiary public hospitals, and capital investment. In 2007, social health insurance (SHI) accounted for 27.5 per cent and out-of-pocket payments for 13.2 per cent of THE, down from 14.1 per cent in 2000. SHI is financed predominantly through employee and employer contributions and out-of-pocket payments consist largely of individuals' purchases of self-prescribed drugs.

Figure 1.1: Health care financing mix

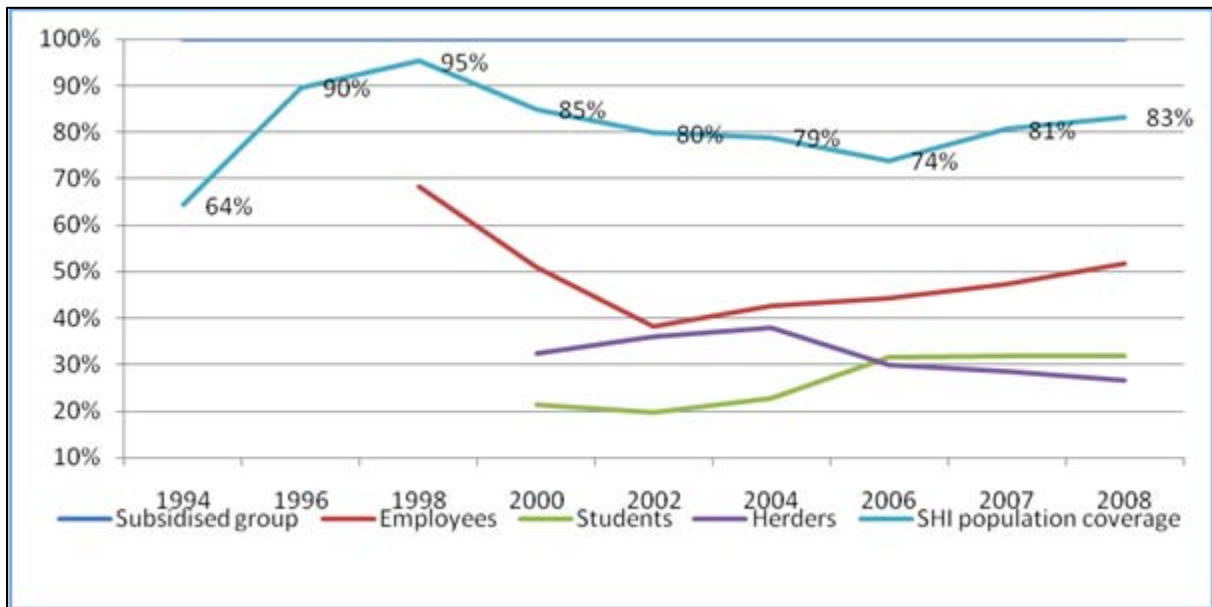


Source: WHO National Health Accounts database (2009)

Population coverage and basis for entitlement

The Mongolian SHI system, a universal scheme with mandatory enrolment, has been in place since 1994. The government pays contributions for pensioners, social assistance beneficiaries, children under 16 years old, parents on parental leave and soldiers. In short, these subsidised people are exempted from official co-payments. The figure below shows that the SHI population coverage declined slightly between 1998 and 2006, but has increased since. Despite the compulsory nature of SHI enrolment, 19 per cent of the population remained without SHI coverage in 2007. As shown in the Figure 1.2, most of the uninsured are students and herders.

Figure 1.2 : Trends in insurance coverage



Source: Social Insurance General Office (2009)

1.3 Health care delivery system

Provider organizations

Public sector health services are provided at four levels, ranging from rural primary health care services to national, reference level institutions in Ulaanbaatar. Public sector health services are classified as follows:

- Bag feldsher (community nursing) posts (633) in remote rural areas provide first aid and primary preventive check-up services for herder families
- The first referral level health institutions are soum hospitals (288), intersoum hospitals (35) in rural areas and family group practices (FGPs) in aimag centers (105) and Ulaanbaatar city (124). Each soum hospital has at least one doctor, a midwife and additional support service staff. FGPs have doctors (3-5), nurses and additional support service staff. The main users of FGPs are poor people.
- The second level referral institutions are rural general hospitals (4) in townships, general hospitals (18) in the aimag centers, and district general hospitals (12) in Ulaanbaatar city districts. These hospitals operate with at least 200 beds. Similar to FGPs, the district general hospitals are mainly occupied by the elderly and the poor.
- The third, or national, reference level institutions of the health service are general and specialized centers (15) and public health centers in Ulaanbaatar and Regional Diagnostic and Treatment Centers (3) in 3 regions.

Since opening to the market economy in the early 1990s, a large number of private health care providers have emerged. There are 159 private hospitals and 698 private clinics operating in Mongolia. Almost all of the private hospitals are licensed to provide secondary level care. There are only a few multi-specialty hospitals. They are all located in the capital city Ulaanbaatar.

There are approximately 1,000 private pharmacies and pharmacy outlets operating in Mongolia. Drug utilization rates are high. Household surveys of several different periods have indicated that self-prescribed drugs are the most costly item in the household expenditure.

Payment mechanisms and provider autonomy

Although the Public Sector Finance Management Law (2002) attempts to provide more autonomy and flexibility to public providers like hospitals, public finance rules and regulations are fairly stringent in terms of staffing and allocation of user fees. Staff numbers are controlled and approved along with the annual budget by the Ministry of Finance. Hiring and firing is subject to civil service regulations. User fee collections are paid to the single treasury and allocated back in the total hospital budget.

Since 2007, a risk-adjusted capitation model has determined the funding for primary health care providers and a Diagnostic Related Group (DRG) system with 115 groups has determined funding for hospitals. The initial number of DRG groups was 22 major diagnostic groups, but was then expanded to 115 in 2009. However, in reality, funding is still determined on the basis of the previous year's spending as the baseline, adjusted by a percentage increase, which is then classified or divided into 115 DRG cases to define the respective contributions of the state budget and health insurance fund.

The SHI fund reimburses contracted private pharmacies for providing essential drugs to the insured. National essential list of drugs are reimbursable for these pharmacies at discounted rates (50-70 per cent of prices are reimbursed), but only when the drugs are prescribed by FGPs (primary health care provider in urban settings) and soum health centers/hospitals (primary health care provider in rural settings).

Payments from the health insurance fund for inpatient services of private health care providers and sanatoria are calculated based on the rate defined by the accreditation percentage of the respective provider multiplied by the average DRG rate applied for similar level public hospitals.

There are formal user fees for both inpatient and outpatient services. They include the following: copayments for inpatient stays for SHI funded patients in aimag and central hospitals; outpatient drugs in all hospitals and FGPs; and fees for outpatient diagnostic services in aimag and central level hospitals. Outpatient care at soum hospitals and FGPs is entirely free except for the purchase of essential drugs associated with the treatment.

National public health programs, research, professional training, health services during natural or unforeseen disasters and infectious diseases natural foci services are paid on the basis of a global budget from the central government budget.

Resource availability and utilization

As in many countries in the former Soviet Union, hospital inputs to health care are quite high in Mongolia. Health facilities with inpatient beds can be found throughout the system from the primary level onwards. Hospital beds per capita are high at all levels of the health system. Inpatient utilization and average lengths of stay are also high at all levels of the system, not just at the tertiary level.

2 Inequalities in health

Most policymakers regard large inequalities in health outcomes between poor and rich as undesirable. This section reports inequalities in child and adult health outcomes, as well as health behaviors.

2.1 Data availability

A Multiple Indicator Cluster Survey (MICS) was conducted in Mongolia in 2005. Although the 2005 Mongolia MICS has rich information for many health outcomes, particularly in relation to children, it does not capture dimensions of adult health and adult health behaviors. There is also the Mongolia Household Socio-Economic Survey (HSES), an annual nationally representative household survey, but it does not contain information on the selected health outcomes. The 2005 MICS lacks consumption and income measures, but one can construct an “asset index” using principal components analysis to rank households from poorest to richest (see Filmer and Pritchett 2001).

2.2 Inequalities in health

The tables in this section show how health outcomes vary across asset (wealth) quintiles. The tables show the mean values of the indicator for each quintile, as well as for the sample as a whole. Also shown are the concentration indices that capture the direction and degree of inequality. A negative value indicates that the indicator takes a higher value among the poor, while a positive index indicates that the indicator takes a higher value among the better-off. The larger the index in absolute size, the more inequality there is.

Table 2.1 shows that, according to the 2005 MICS, both diarrheal disease and acute respiratory infection (ARI) are more prevalent among the poor. The MICS anthropometric data indicate that stunting and underweight are also significantly more common among children in poor households. In sum, all selected child health outcomes are worse for poor households. Unfortunately, with available data sources, we do not have any more information on the selected indicators of health outcomes in Mongolia.

Table 2.1: Inequalities in child health

	Lowest quintile	Q2	Q3	Q4	Highest quintile	Total	Concentration index
Stunting	32.2%	33.7%	26.2%	20.0%	19.2%	27.1%	-0.122***
Underweight	7.3%	6.8%	4.2%	4.1%	3.2%	5.4%	-0.190***
Diarrhea	8.3%	7.2%	6.5%	5.2%	4.9%	6.6%	-0.107***
Acute respiratory infection	16.8%	16.1%	16.6%	12.5%	17.3%	16.0%	-0.019

Source: Authors' estimates using ADePT and data from the 2005 Mongolia MICS.

Note: * CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%

3 Inequalities in health care utilization

In many countries, for a variety of possible reasons, health care utilization tends to be distributed very unequally across income groups, even after taking into account differences in medical needs. This section reports on inequalities in utilization of health care in Mongolia for different types of care, and for different types of health care provider.

3.1 Data availability

A Multiple Indicator Cluster Survey (MICS) was conducted in Mongolia in 2005. Although the 2005 Mongolia MICS has rich information with respect to maternal and child health (MCH) interventions, it does not capture dimensions of adult health and general health utilization. The 2005 MICS excludes consumption or income measures, but one can construct an “asset index” using principal components analysis to rank households from poorest to richest (see Filmer and Pritchett 2001).

The second data source used in this section is the Mongolia Household Socio-Economic Survey (HSES) of 2007-08. This is a nationally representative survey whose main objective is to evaluate and monitor the income and expenditure of households. The HSES is a permanent survey carried out by the National Statistics Office every year. It contains 16 major modules on household consumption and behavior of Mongolian households, including health care seeking behavior. It includes a detailed consumption module, which is used to calculate monthly household consumption per capita. This module includes five components: food, non-food, housing, durable goods, and energy. The health module asks each member of the household whether or not s/he was ill during the past month, and if s/he was ill, whether s/he obtained any outpatient care for that illness. Information is collected on outpatient care use by public or private provider, and primary, secondary or tertiary hospital. Then, each household member is asked if they were hospitalized at any time during the past 12 months, and the number of nights spent in hospital by primary (soum hospitals and FGPs), secondary (aimag hospitals) or tertiary levels (central level hospitals). The utilization analysis is done for two groups of hospitals: primary level facilities consisting of soum hospitals and FGPs, and the secondary and tertiary level facilities combined, consisting of aimag hospitals, central hospitals and regional specialist centres.

3.2 Inequalities in health care utilization

The tables in this section show how health care utilization varies across consumption or asset quintiles. The tables show the mean values of the indicator for each quintile, as well as for the sample as a whole. Also shown are the concentration indices that capture the direction and degree of inequality. A negative value indicates that utilization is higher among the poor, while a positive index indicates higher utilization rates among the better-off. The larger the index in absolute size, the more inequality in utilization there is.

Table 3.1 shows coverage of key MCH interventions and treatment of childhood illness using data from the 2005 Mongolia MICS. 95.2 per cent of children under-five are fully immunized, while 56.5 per cent

of women use a modern method of contraception. Immunization and the medical treatment of ARI are significantly pro-rich, but there appears to be no significant differences across the quintiles in the treatment of diarrhea. The data also suggest that that contraceptive use might be higher among poorer women, but the concentration index is not statistically significant.

Table 3.1: Inequalities in maternal and child health interventions

	Lowest quintile	Q2	Q3	Q4	Highest quintile	Total	Concentration index
Full immunization	91.0%	95.7%	96.9%	96.5%	96.7%	95.2%	0.013**
Treatment of diarrhea	62.4%	62.5%	64.3%	61.4%	63.5%	62.8%	0.006
Medical treatment of ARI	54.8%	67.4%	76.1%	79.6%	71.8%	68.4%	0.072***
Contraceptive prevalence among women	63.5%	59.2%	55.6%	56.3%	48.9%	56.5%	-0.046

Source: Authors' estimates using ADePT and data from the 2005 Mongolia MICS.

Note: * CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

Table 3.2 shows the only indicator available for adult preventive care in the MICS data. The data indicates that the better-off have slightly higher rates of utilization for voluntary testing and counseling for HIV.

Table 3.2: Inequalities in adult preventive care

	Lowest quintile	Q2	Q3	Q4	Highest quintile	Total	Concentration index
Voluntary counseling and testing for HIV	83.2%	92.7%	93.6%	95.9%	95.8%	94.2%	0.015***

Source: Authors' estimates using ADePT and data from the 2005 Mongolia MICS.

Note: * CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

Table 3.3 shows the distribution of curative services in Mongolia for both adults and children according to the HSES 2007/08. Public sector outpatient services are the most frequently used, particularly soum hospital and FGP outpatient services, with 17.1 per cent of visits per capita per year. In general, outpatient services are more pro-rich than inpatient services. At soum hospitals, both inpatient and outpatient services favor the poor, although the concentration index for outpatient services is not significant. At aimag and central hospitals, both outpatient and inpatient care favor the poor. However, it is worth noting that inpatient care use at among the bottom three quintiles is roughly equal at aimag and central hospitals. All private sector services are concentrated among the better-off.

Table 3.3: Inequalities in adult curative care

	Outpatient visits ⁽¹⁾				Inpatient admissions ⁽²⁾			
	Soum hospital / FGP	Aimag and central hospital	All public	Private	Soum hospital / FGP	Aimag and central hospital	All public	Private
Lowest quintile	18.7%	19.9%	39.0%	1.8%	3.6%	4.9%	8.6%	0.5%
2	13.9%	18.6%	32.6%	2.1%	2.4%	4.9%	7.4%	0.6%
3	18.5%	26.8%	45.5%	4.1%	2.4%	5.0%	7.5%	1.0%
4	17.0%	34.4%	51.7%	5.3%	2.0%	6.0%	8.1%	1.3%
Highest quintile	17.1%	48.7%	66.3%	17.3%	1.5%	7.3%	8.9%	2.3%
Total	17.1%	29.7%	47.0%	6.1%	2.4%	5.6%	8.1%	1.2%
Concentration index	0.000	0.208***	0.133***	0.482***	-0.165***	0.085***	0.013	0.316***

Source: Authors' estimates using ADePT and data from HSES 2007/08.

Note: The utilization data refer to last 12 months in all cases. (1) Utilization rate is based on whether or not individual received any outpatient care during the past month, annualized. (2) Utilization rate is based on whether or not individuals were hospitalized at any time during the 12 months prior to the survey

Note: * CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

In sum, the tables in this section indicate that, in Mongolia, the poor are less likely to utilize both preventive and curative care health services, putting them at greater risk for ill health.

4 Benefit incidence of government spending

Policymakers typically take the view that government health expenditure (GHE) ought not to disproportionately benefit the better-off, and if anything ought to favor the poor more than the better-off. Benefit-incidence analysis (BIA) shows whether and how far GHE disproportionately benefits the poor. This section reports BIA results for Mongolia, using three different methods for allocating GHE to households, namely the constant unit cost assumption, the constant unit subsidy assumption, and the proportional unit cost assumption. The first is arguably the least plausible of the three, since it implies that higher fees do not translate into more costly care. But it does have the attraction of not needing to be modified if part of (general) GHE goes on demand-side subsidies through, for example, a subsidized health insurance program. Where the results presented below are obtained using the constant-unit-subsidy and proportional-unit-cost assumptions, it is assumed implicitly that supply- and demand-side subsidies have the same distributional impact.

4.1 Data availability

The Mongolia HSES 2007-08 is the main data source for this section. The health module of the survey, described in previous sections, is used in this section as well. The survey asks individuals about their outpatient care use (past 1 month) and inpatient care use (past 12 months), by public or private provider, and type of hospital. It does not collect information on outpatient care use at bag feldsher units. Therefore, this benefit incidence analysis is limited to hospitals. The benefit incidence analysis is performed for two groups of hospitals: soum hospitals and FGPs that are the primary level hospitals; and aimag hospitals, central hospitals and regional specialist centers, that are the secondary and tertiary level providers. The health module also asks individuals about payments made for outpatient and inpatient care separately. Payments are defined in the survey as fees to providers, both cash and in kind, and drug purchases associated with the outpatient visit or admission.

A BIA also needs data on GHE (i.e. subsidies) by level of service. Statistics obtained directly from the Ministry of Finance and hospital budget data for 2007 were used to calculate the aggregate subsidy¹. Subsidies to primary, secondary and tertiary level hospitals (both MOH and non-MOH facilities) were included in the calculation. Subsidies to health institutions that are of administrative nature such as the Ministry of Health, Department of Health, and sports centers were not included in the aggregate subsidy. Next, the results of a facility costing study from 2005 were used to estimate the proportions of hospital expenditures on outpatient and inpatient services, and thus allocate the hospital subsidies to inpatient and outpatient services. Finally, the subsidies were aggregated at the regional level to account for regional variation in spending.

4.2 Inequalities in benefit incidence

The tables in this section show the distribution across consumption quintiles of utilization for government facilities, fees paid to these facilities, and estimated subsidies to the health sector. The

¹ Mongolia has a set of National Health Accounts (NHA), but since the most recently available NHA are from 2005, the authors use data obtained directly from the Ministry of Finance and hospital budgets to calculate the aggregate subsidy.

latter depend on the assumptions made to allocate subsidies to households; results are presented for three sets of assumptions. The tables show the shares of fees or shares of subsidies that go to each quintile. Also shown are the concentration indices, which capture the direction and degree of inequality. A negative value indicates that the variable in question is higher among the poor, while a positive index indicates higher values among the better-off. The larger the index in absolute size, the more inequality in the indicator there is.

Table 4.1 shows the utilization of two types of public facility with hospital care broken down into outpatient and inpatient. For both outpatient and inpatient services, the average number of annual visits per capita to soum hospitals and FGPs declines with income for both outpatient and inpatient services. In short, distribution of care at soum hospitals and FGP favors the poor. At aimag and central hospitals, inpatient visits favor the better-off by a slight margin, while outpatient visits favor the rich by a larger margin.

Table 4.1: Inequalities in use of publicly financed facilities

	Soum hospitals/FGP outpatient	Aimag / central hospital outpatient	Soum hospitals/FGP inpatient	Aimag / central hospital inpatient
Lowest quintile	18.7%	19.9%	3.6%	4.9%
2	13.9%	18.6%	2.4%	4.9%
3	18.5%	26.8%	2.4%	5.0%
4	17.0%	34.4%	2.0%	6.0%
Highest quintile	17.1%	48.7%	1.5%	7.3%
Total	17.1%	29.7%	2.4%	5.6%
Concentration index	-0.000	0.208***	-0.165***	0.085***

Source: Authors' estimates using ADePT and data from HSES 2007-08.

Note: The utilization data refer to the last 12 months in all cases.

Note: * CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

Table 4.2 describes inequalities in health fees for outpatient and inpatient utilization. For all services, except inpatient soum hospitals and FGPs, contributions rise steadily with income, suggesting that user fee payments are progressive. The gradient is particularly sharp for outpatient services at aimag and central hospitals where the lowest quintile bears only 2.7 per cent of all fees paid at the facilities, while the highest quintile contributes approximately 64 per cent.

Table 4.2: Distribution in fees paid

	Soum hospitals/FGP outpatient	Aimag / central hospital outpatient	Soum hospitals/FGP inpatient	Aimag / central hospital inpatient
Lowest quintile	8.7	2.7	14.9	7.0
2	9.8	4.4	21.3	12.2
3	19.3	10.5	24.7	12.8
4	22.7	18.2	20.1	23.4
Highest quintile	39.5	64.2	19.0	44.5
Total	100.0	100.0	100.0	100.0
Concentration index	0.303***	0.609***	0.036	0.368***

Source: Authors' estimates using ADePT and data from HSES 2007/08.

Note: * CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

Table 4.3 shows the incidence of government spending on health. The first two lines of the table show how aggregate government spending on health varies across service types. The table contains three sets of estimates of the distribution of subsidies across consumption quintiles. The first set is based on the constant unit-cost assumption, i.e. each hospital outpatient visit (say) is assumed to cost the same, an amount equal to total costs incurred in delivering this type of service (i.e. subsidies plus user fees) divided by the number of units of utilization. This approach can lead to negative imputed subsidies since the amount someone pays in fees could exceed the unit cost. In Table 4.3, as in much of the literature, negative imputed subsidies have been set to zero. The second set of results are based on the assumption that the unit subsidy is constant, equal to total subsidies for the service in question divided by the number of units of utilization of that service. The third set of results assumes that higher fees for a particular type of care indicate a more costly type of care received, i.e. it is assumed that unit costs and fees are proportional to one another.

The first two lines of Table 4.3 indicate that nearly half of the total budget for health care services goes to inpatient care at aimag and central hospitals, including regional specialist centres. Just over a quarter of the total budget goes to outpatient care at the same hospitals. Secondary and tertiary hospitals combined account for nearly three-fourths of subsidies for health care services. The remainder of the subsidy goes to soum hospitals and FGPs.

The first set of results based on the constant unit-cost assumption show government spending overall is slightly pro-rich. The pro-rich distribution of subsidies to aimag and central level hospitals has been balanced out by the strongly pro-poor distribution of subsidies to soum hospitals and FGP. Since a large share of the total subsidy goes to aimag and central level hospitals, the overall distribution is slightly pro-rich. For both kinds of facilities, subsidies to inpatient care are more pro-poor than subsidies to outpatient care. When unit subsidies (rather than unit costs) are assumed to be constant (the second set of results), subsidies to soum hospitals are less pro-poor, and subsidies to aimag and central hospitals are more pro-rich. The overall distribution is also more pro-rich. When unit costs are assumed to be proportional to the amount spent out-of-pocket, the distribution of all of the subsidies is pro-rich.

In sum, the results indicate that the distribution of GHE is slightly pro-rich in Mongolia. The distribution of subsidies to soum hospitals is pro-poor, while that of subsidies to aimag and central hospitals is pro-

rich. With three-fourths of the budget for health services allocated to aimag and central hospitals, the overall distribution is moderately pro-rich. Subsidies for inpatient care are generally less pro-rich than subsidies for outpatient care.

Table 4.3 Inequality in the incidence of government health spending (shares)

	Soum hospitals/FGP outpatient	Aimag / central hospital outpatient	Soum hospitals/FGP inpatient	Aimag / central hospital inpatient	Total subsidies
Total subsidies	11,575	26,704	16,956	46,198	101,534
Share of total subsidy (%)	11.4	26.3	16.7	45.5	100.0
<i>Constant unit cost assumption</i>					
Lowest quintile	25.3	18.5	30.6	18.8	21.5
2	18.0	15.0	20.1	18.0	17.6
3	22.0	19.3	20.2	18.4	19.4
4	18.4	23.0	17.1	20.8	20.5
Highest quintile	16.3	24.2	12.0	24.0	21.1
Total	100.0	100.0	100.0	100.0	100.0
Concentration index	-0.072***	0.078***	-0.171***	0.053***	0.008
<i>Constant unit subsidy assumption</i>					
Lowest quintile	22.0	13.7	30.2	17.6	19.9
2	16.4	12.3	20.2	17.4	16.9
3	21.6	18.1	20.3	17.8	18.8
4	20.0	23.1	17.2	21.2	20.6
Highest quintile	20.1	32.8	12.2	26.0	23.7
Total	100.0	100.0	100.0	100.0	100.0
Concentration index	-0.001	0.208***	-0.164***	0.085***	0.047***
<i>Proportional cost assumption</i>					
Lowest quintile	8.7	2.7	14.9	7.0	8.0
2	9.8	4.4	21.3	12.2	12.4
3	19.3	10.5	24.7	12.8	15.5
4	22.7	18.2	20.1	23.4	21.8
Highest quintile	39.5	64.2	19.0	44.5	42.3
Total	100.0	100.0	100.0	100.0	100.0
Concentration index	0.303***	0.609***	0.036	0.368***	0.336***

Source: Authors' calculations using ADePT and HSES 2007/08.

Note: Total subsidies are in millions of Mongolian Tugrik. With the constant cost assumption imposed, grossed-up survey data for fees have been used and negative imputed subsidies have been set to zero.

Note: * CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

5 Financial protection in health

Countries finance their health care through a mix of out-of-pocket payments, private and social insurance, general revenues, and international development assistance. All except the latter ultimately come from the pockets of households in the country. Therefore, health systems are not just about improving health but also about ensuring that people are protected from the financial consequences of illness and death, or at least from the financial consequences of having to obtain medical care. This section presents data on two alternative measures of financial protection: one that asks whether out-of-pocket spending is ‘catastrophic’ and the other that asks if it is ‘impoverishing’. Neither captures the income losses associated with illness, and both therefore underestimate the full financial impact of ill health on households. The section also explains the institutional arrangements used in Vietnam to provide financial protection in the health sector, and presents data on levels of inequalities in coverage.

5.1 Data availability

The Mongolia HSES 2007/08, described above, is the main source of data used in this section. Households are ranked by per capita consumption.

5.2 Catastrophic out-of-pocket payments

This subsection provides information on ‘catastrophic’ health payments. Catastrophic payments are defined as health care payments in excess of a predetermined percentage of their total household or nonfood spending.

The columns of Table 5.1 give different thresholds above which health payment “budget shares” might be deemed catastrophic. The first line of the table displays the catastrophic payment “headcount”, i.e. the proportion of households with a health payment budget share greater than the given threshold. The second line relates the catastrophic payment headcount to the household consumption distribution, and shows the concentration index of the incidence of catastrophic payments. A positive value of the concentration index indicates a greater tendency for the better-off to have out-of-pocket spending in excess of the payment threshold, whereas a negative value indicates that the worse off are more likely to have out-of-pocket spending exceeding the threshold.

Table 5.1: Incidence of catastrophic out-of-pocket spending

	Threshold share of total household consumption				
	5%	10%	15%	25%	40%
Headcount	17.7%	10.0%	6.3%	3.4%	1.3%
Concentration index	0.133***	0.201***	0.265***	0.334***	0.546***
	Threshold share of nonfood consumption				
	5%	5%	5%	5%	5%
Headcount	24.8%	16.2%	11.6%	6.5%	3.3%
Concentration index	0.052***	0.080***	0.095***	0.172***	0.228***

Source: Authors' estimates using ADePT and data from HSES 2007-08.

Note: * CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

Table 5.1 first shows that when the threshold is raised from 5 to 40 per cent of total household expenditure, the estimate of the incidence of catastrophic payments falls from 17.7 to 1.3 per cent. When the threshold is raised from 5 to 40 per cent of nonfood expenditure, the estimate of the incidence of catastrophic payments falls from 24.8 to 3.3 per cent. The concentration index for catastrophic spending is positive for all thresholds and all measures, implying that catastrophic payments are more common among the better-off. The incidence of catastrophic payments in Mongolia is moderate compared to other countries in the East Asia Pacific region.

5.3 Impoverishing out-of-pocket payments

This subsection presents poverty measures corresponding to household consumption gross and net of out-of-pocket health spending. A comparison of the two shows the scale of impoverishment due to health payments. The idea is that a health problem necessitating out-of-pocket medical spending may be serious enough to push a household from being above the poverty line 'before' the health problem to being below the poverty line 'after' the health problem. Adding out-of-pocket spending to the household's nonmedical consumption ('consumption including – or gross of – health payments') gives us a sense of what its standard of living would have been *without* the health problem. Its nonmedical spending ('consumption excluding health payments') gives us a sense of what its standard of living looks like *with* the health problem. The assumption here is that out-of-pocket spending is involuntary and caused by health "shocks"; health spending is assumed to be financed by reducing current consumption.

The first line of Table 5.2 shows the poverty "headcount" which represents the proportion of individuals living below the poverty line. Two poverty lines are used: the lower line corresponds to 750,000 Mongolian tugriks a day at purchasing power parities (PPP); the upper line corresponds to \$2 a day.² The poverty gap gives the total shortfall from the poverty line, averaged across the entire population; it is expressed in dollars a day. The mean positive poverty gap is a measure of the intensity of poverty: it indicates the average shortfall from the poverty line among those in poverty; it is also measured in dollars a day. Table 5.2 reports results for the Mongolia HSES 2007-08. It can be seen that when out-of-

² Unlike in other country reports in this series, the US\$1.25 poverty line was not used for Mongolia on the advice of the Mongolia World Bank country team. The national poverty line used was 750,000 Mongolian Tugriks per year.

pocket payments are not included as part of household consumption, 14.7 per cent of the population in 2007 (according to the HSES) is estimated to have been in poverty using the US\$2.00 a day poverty line. If out-of-pocket payments for health care are added into total household consumption, this percentage falls to 13.1 per cent. So about 1.6 per cent of the population would not have been poor if the resources they devoted to health care had been available to spend on other things. Put another way, the poverty rate is increased by 1.6 percentage points (or 12 per cent) by health “shocks” that divert household spending from general consumption to health spending. When health payments are netted out of household consumption, the poverty gap rises by 0.4 percentage points or 14 per cent. The normalized mean positive poverty gap only increases slightly in comparison (by 1 per cent), suggesting that the rise in the poverty gap is mainly due to more households being brought into poverty through out-of-pocket spending on health, and not because of a deepening of the poverty of the already poor.

When the national poverty line of 750,000 Mongolian tugrik (equivalent to around US\$2.80) is used, we find that health spending increases the poverty headcount by 7 per cent and the poverty gap by 9 per cent. The normalized mean poverty gap increases by 2 per cent. This indicates that the rise in the poverty gap is due mainly to more households being brought into poverty through out-of-pocket spending on health, rather than a deepening of poverty among the already-poor.

Table 5.2: Impoverishment through out-of-pocket health spending

	Consumption including health payments	Consumption excluding health payments	Change	Percentage change
<i>Poverty line at US\$2.00 per capita per day</i>				
Percentage in poverty / Poverty headcount	13.1%	14.7%	1.6 pp	12.0%
Average shortfall from the poverty line	\$0.03	\$0.04	\$0.01	14.0%
Average shortfall from the poverty line, among the poor	\$0.26	\$0.26	\$0.00	1.0%
<i>Poverty line at 750,000 Mongolian tugriks per year (national poverty line)</i>				
Percentage in poverty / Poverty headcount	35.2%	37.7%	2.5 pp	7.0%
Average shortfall from the poverty line	\$0.20	\$0.22	\$0.02	9.0%
Average shortfall from the poverty line, among the poor	\$0.57	\$0.58	\$0.01	2.0%

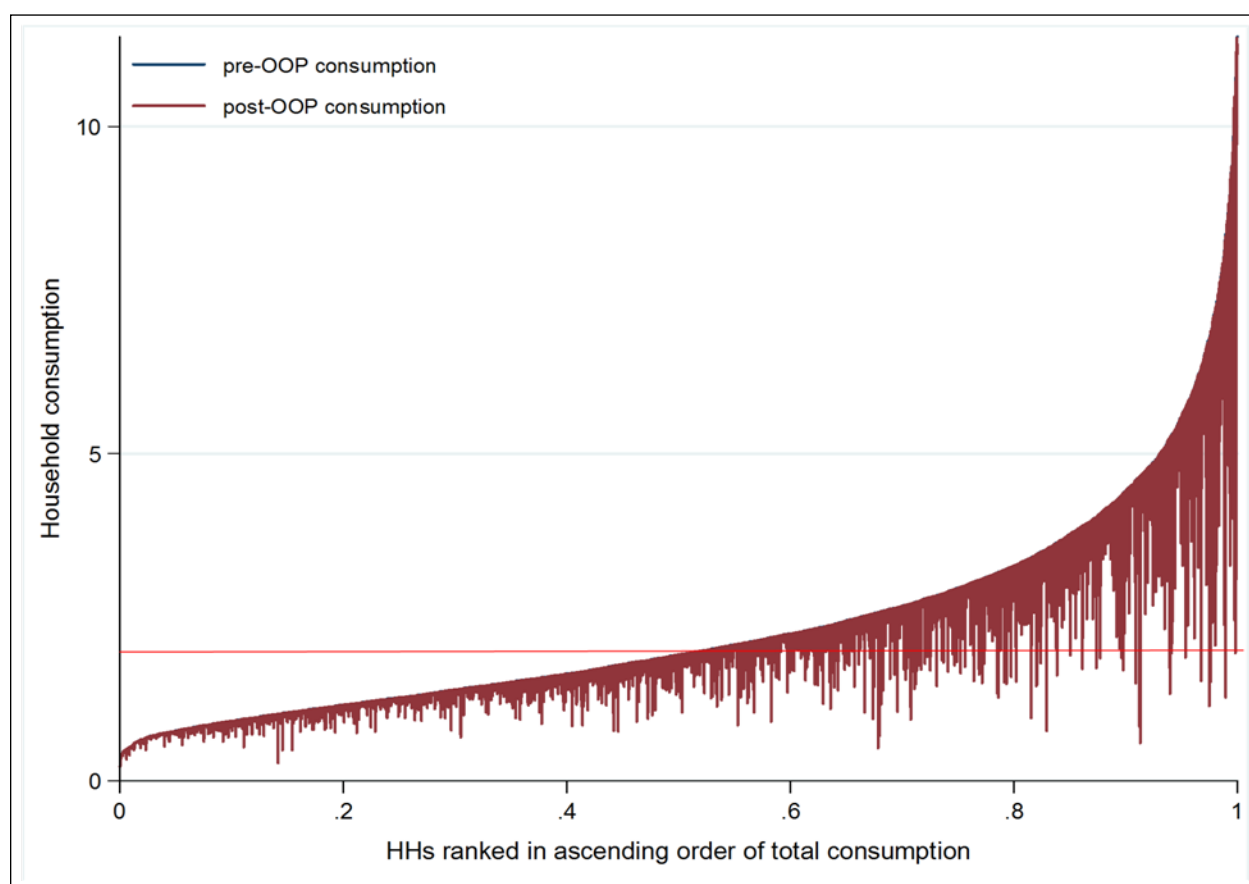
Source: Authors' estimates using ADePT and data from HSES 2007-08.

Note: Poverty lines are at 2005 purchasing power parity, adjusted to current prices using Mongolia's CPI. Figures are for a 12-month period and are in Mongolia local currency units (Tugrik). Adjusting for inflation using Mongolia's CPI, 750,000 tugriks per year in 2008 works out to around \$2.8 per day at 2005 PPP

Figure 5.1 shows the effect of out-of-pocket payments on poverty via a “Pen’s parade”. Households are lined up in ascending order of their consumption including out-of-pocket payments. The vertical “paint drips” show the extent to which out-of-pocket payments divert a household’s spending away from items such as food, education, clothing, etc. insofar as health care is used in response to an adverse health event, health spending doesn’t add to the household’s living standards in a way that food spending does. The length of the paint drip, therefore, shows how far health spending compromises a household’s living standards.

Using the US\$2.00 a day poverty line for Mongolia, out-of-pocket payments are found to be greatest at the higher end of the consumption distribution. However, it is the households that are in the middle and middle-upper part of the consumption range that are most likely to be brought below the poverty line as a result of health care payments. The chart also shows that some households already below the poverty line are pushed even further down as a result of health care payments – a deepening of poverty.

Figure 5.1: The impoverishing effect of out-of-pocket spending



Source: Authors’ estimates using ADePT and HSES 2007-08.

Note: Poverty line is US\$2.00 a day at 2005 purchasing power parities, adjusted to current prices using Mongolia’s CPI.

In sum, this section shows that the incidence of catastrophic payments relative to both total consumption and nonfood spending is largely concentrated among the rich. Health spending also contributes to a substantial impoverishment of many households who would otherwise have not been poor, and also contributes to a deepening of poverty among those who are already poor.

6 Progressivity of health finance

There is a general consensus that payments for health care ought to be at least proportional to households' ability to pay, if not progressive (meaning a poor household contributes a smaller share of its resources than a rich one). The overall progressivity of a health financing system depends on the progressivity of each source of finance, and the share of health spending financed through each source. A system that relies exclusively on out-of-pocket payments is often argued to be likely to be regressive, since out-of-pocket spending often absorbs a larger share of a poor household's resources than of a rich household's resources. This is not always the case, however; when it is not, it is likely that the poor are under-using health care, an issue that can be assessed by the distribution of health utilization.

6.1 Data availability

In addition to household consumption and out-of-pocket health spending, the HSES captures spending on social health insurance premiums. Private health insurance coverage, on the other hand, is not captured by the HSES, but either way it is insignificant in Mongolia. The HSES has a very detailed consumption module, which covers monthly consumption on food and annual consumption on an extensive range of non-food items. The consumption module was used to estimate three types of indirect taxes: value added tax (VAT), import and excise taxes. In each case, the relevant tax rates were applied to goods and services, depending on their applicability. Rates for import taxes were applied to all food and non-food items known to be imported into Mongolia (and excluded for the remainder, based on the authors' knowledge of local conditions). The HSES also records record income tax, cattle tax and land tax payments which were aggregated to analyze direct taxes. The weights for the different financing sources were derived by combining National Health Accounts for health financing shares and National Statistical Office data for the shares of different taxes.

6.2 Progressivity of health care financing

The first five rows of Table 6.1 show each quintile's average consumption and financing share with households ranked in ascending order of gross consumption (i.e. consumption including health care payments). Health care payments are considered progressive if the poorest quintile's share in total household consumption exceeds its share in total payments, while the opposite is true of the richest quintile. Payments are regressive if the poorest quintile's share in total consumption is less than its share in total payments (while again the opposite is true of the richest quintile). This exercise can be performed for total health care payments, as well as for each source separately. Annex A shows the assumptions underlying the distribution of the revenues shares. The next line shows the Gini coefficient, which measures the degree of inequality in gross consumption—the higher the number, the more unequal the distribution of consumption. The line below that shows the concentration index, a measure of how unequally distributed health care payments are across consumption quintiles: a positive value indicates that payments are concentrated among the better-off quintiles, while a negative index would indicate a concentration of payments among the poorer quintiles. The next line shows the Kakwani index, defined as the concentration index less the Gini coefficient. A positive value indicates that payments are more concentrated among the better-off than consumption is and is a sign that payments are progressive. A negative Kakwani index indicates that payments are regressive. Finally, the table indicates the size of the "redistributive effect" associated with health care payments. This is the change

in consumption inequality brought about by health care payments. A positive number indicates that there was less inequality in consumption after payments than before, which is the case if payments are progressive. The more progressive they are, and the larger the fraction of (gross) consumption accounted for health care payments, the bigger will be the amount of “redistributive effect”.

Table 6.1: Progressivity of health financing

	Consumption	Direct Taxes	Indirect Taxes			SHI	Out-of-pocket spending	Total payments
			VAT	Excise taxes	Import Taxes			
Lowest quintile	7.3	3.4	9.4	1.4	9.5	7.6	3.6	6.4
2	11.4	9.3	11.6	5.0	10.2	11.4	5.9	9.4
3	15.8	12.1	16.1	9.5	14.5	14.8	10.4	13.4
4	22.2	18.8	21.8	19.3	20.9	22.5	20.5	21.1
Highest quintile	43.4	56.4	41.2	64.7	45.0	43.8	59.6	49.7
NHA shares (%)		7.78	24.75	13.70	9.57	27.5	16.7	100
Gini coefficient	0.358***							
Concentration index		0.503***	0.320***	0.608***	0.359***	0.360***	0.560***	0.428***
Kakwani index		0.144***	-0.0384**	0.250***	0.000	0.002	0.202***	0.070***

Source: Distribution of consumption, SHI contributions, income taxes and out-of-pocket payments estimated by authors using ADePT and data from HSES 2007/08. Distributions of indirect taxes by quintile estimated using data from the HSES consumption module and applicable tax rates.

Note: * Significant at 10%, **Significant at 5%, ***Significant at 1%.

Table 6.1 shows that health care finance in Mongolia in 2007 was mildly progressive, i.e. the better-off spent a larger fraction of their consumption on health care than the poor. Underlying this overall progressiveness is the progressiveness of direct taxation and out-of-pocket payments, which together finance nearly a quarter of all health care. Out-of-pocket payments are more progressive than direct taxes. VAT, import duties and SHI premiums are not as progressive. VAT payments are the only regressive source of health financing.

The findings are comparable to many other countries in the East Asia and Pacific region, where direct taxes and out-of-pocket payments are the two most progressive sources of health financing. In East Asia and Pacific countries where SHI is limited to civil servants, SHI payments tend to be quite progressive unlike in Mongolia where SHI payments are made by somewhat broader group of the population.

In sum, direct taxes and out-of-pocket payments are strongly progressive in Mongolia. SHI contributions are progressive. Some indirect taxes, namely import duties, are progressive while others, namely VAT, are regressive. Overall health care financing is mildly, but significantly, progressive.

7 References

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8 Annexes

8.1 Additional graphs and tables

Table A1: Tax progressivity assumptions

	% revenue share	Concentration index	Comment
PIT	5.7	0.5026	
CIT	3.4	-	Assumed to be distributed as PIT
Property tax	0.6	-	Assumed to be distributed as PIT
VAT	20.2	0.3199	
Excise taxes	10.2	0.6080	
Import duties	7.3	0.3586	
Other taxes	13.0	-	Assumed to be distributed as VAT, Excise and Import duties
Non-tax revenues	39.0	-	Assumed to be distributed as VAT, Excise and Import duties
Total			

Source: Revenue shares from the National Statistical Office. Concentration indices are computed from HSES 2007/08.

8.2 Measurement of indicators

INDICATOR	MEASUREMENT	DATA
CHILD HEALTH		
Infant mortality rate	Number of deaths among children under 12 months of age per 1,000 live births (Note: mortality rate calculated using the true cohort life table approach; the DHS reports use of the synthetic cohort life table approach)	DHS
Under-five mortality rate	Number of deaths among children under 5 years of age per 1,000 live births (Note: mortality rate calculated using the true cohort life table approach; the DHS reports use of the synthetic cohort life table approach)	DHS
Stunting	% of children with a height-for-age z-score <-2 standard deviations from the reference median (Note: z-score calculated using WHO 2006 Child Growth Standards)	DHS, MICS
Underweight	% of children with a weight-for-age z-score <-2 standard deviations from the reference median (Note: z-score calculated using WHO 2006 Child Growth Standards)	DHS, MICS
Diarrhea	% of children with diarrhea (past two weeks)	DHS, MICS
Diarrhea	% of children with diarrhea (past two weeks; youngest child)	WHS
Acute respiratory infection	% of children with an episode of coughing and rapid breathing (past two weeks)	DHS, MICS
Acute respiratory infection	% of children with an episode of coughing and rapid breathing (past two weeks; youngest child)	WHS
Fever	% of children with fever (past two weeks)	DHS, MICS
Fever	% of children with fever (past two weeks; youngest child)	WHS
Malaria	% of children with an episode of malaria (past year; youngest child)	WHS
ADULT HEALTH		
Tuberculosis	% of adults who reported tuberculosis symptoms (past year)	WHS
HIV positive	% of adults aged 15 to 49 whose blood tests are positive for HIV 1 or HIV 2	DHS
Obesity among non-pregnant women	% of women aged 15 to 49 with a BMI above 30	DHS
Obesity among all women	% of women aged 18 to 49 with a BMI above 30	WHS
Road traffic accident	% of adults involved in a road traffic accident with bodily injury (past year)	WHS
Non-road traffic accident	% of adults who suffered bodily injury that limited everyday activities, due to a fall, burn, poisoning, submersion in water, or by an act of violence (past year)	WHS
Angina	% of adults ever diagnosed with angina or angina pectoris	WHS
Arthritis	% of adults ever diagnosed with arthritis	WHS
Asthma	% of adults ever diagnosed with asthma	WHS
Depression	% of adults ever diagnosed with depression	WHS
Diabetes	% of adults ever diagnosed with diabetes	WHS
Difficulty with work and household activities	% of adults who have severe or extreme difficulties with work or household activities (past 30 days) (Note: This indicator was created from an ordinal variable with five categories)	WHS
Poor self-assessed health status	% of adults who rate own health as bad or very bad (Note: This indicator was created from an ordinal variable with five categories)	WHS
RISK FACTORS		
Smoking (all)	% of adults who smoke any tobacco products such as cigarettes, cigars or pipes	WHS

Smoking (women)	% of women aged 15 to 49 who smoke cigarettes, pipe or other tobacco	DHS
Smoking (women)	% of women aged 18 to 49 who smoke cigarettes, pipe or other tobacco	WHS
Insufficient intake of fruit and vegetables	% of adults who have insufficient intake of fruit/vegetables (less than 5 servings)	WHS
Insufficient physical activity	% of adults who spend < 150 minutes on walking/ moderate activity/vigorous activity (past week)	WHS
Drinking	% of adults who consume ≥5 standard drinks on at least one day (past week)	WHS
Concurrent partnerships	% of women aged 15 to 49 who had sexual intercourse with more than one partner (past year)	DHS, MICS
Concurrent partnerships	% of women aged 18 to 49 who had sexual intercourse with more than one partner (past year)	WHS
Condom usage (more than one partner)	% of women aged 15 to 49 who had more than one partner in the past year and used a condom during last sexual intercourse	DHS, MICS
Condom usage (more than one partner)	% of women aged 18 to 49 who had more than one partner in the past year and used a condom during last sexual intercourse	WHS
Mosquito net use by children	% of children who slept under an (ever) insecticide treated bed net (ITN) (past night)	DHS, MICS
Mosquito net use by pregnant women	% of pregnant women aged 15 to 49 who slept under an (ever) insecticide treated bed net (ITN) (past night)	DHS
MATERNAL AND CHILD HEALTH INTERVENTIONS		
Full immunization	% of children aged 12-23 months who received BCG, measles, and three doses of polio and DPT, either verified by card or by recall of respondent	DHS, MICS
Treatment of diarrhea	% of children with diarrhea given oral rehydration salts (ORS) or home-made solution	DHS, MICS
Medical treatment of ARI	% of children with a cough and rapid breathing who sought medical treatment for acute respiratory infection (past 2 weeks)	DHS, MICS
Skilled antenatal care (4+ visits)	% of mothers aged 15 to 49 who received at least 4 antenatal care visits from any skilled personnel (Note: type of skilled personnel varies by country including doctor, nurse, midwife, auxiliary midwife, feldsher, clinical officer, health surveillance attendant, medical assistant)	DHS
Skilled birth attendance	% of mothers aged 15 to 49 that were attended by any skilled personnel at child's birth (Note: type of skilled personnel varies by country including doctor, nurse, midwife, auxiliary midwife, feldsher, clinical officer, health surveillance attendant, medical assistant)	DHS
Contraceptive prevalence	% of women aged 15 to 49 who currently use a modern method of contraception	DHS, MICS
ADULT PREVENTIVE CARE		
TB screening	% of adults who were tested for tuberculosis (past year)	WHS
Voluntary Counseling and Testing for HIV	% of women aged 18 to 49 who were tested for HIV and were told the results of the test	WHS, MICS
Cervical cancer screening	% of women aged 18 to 69 who received a pap smear during last pelvic examination (past 3 years)	WHS
Breast cancer screening	% of women aged 40 to 69 who received a mammogram (past 3 years)	WHS
ADULT CURATIVE CARE		
Inpatient or outpatient (12 months)	% of adults who used any inpatient or outpatient health care (past year)	WHS
Inpatient (12 months)	% of adults who used any inpatient health care (past year)	WHS
Inpatient (5 years)	% of adults who used any inpatient health care (past 5 years)	WHS
Outpatient (12 months)	% of adults who used any outpatient health care (past year; conditional on having not used any inpatient care past 5 years)	WHS

Note: Unless otherwise noted, all children are under the age of 5 and all adults are aged 18 and older

8.3 Methodological notes

Sections 2 and 3: Inequalities in health and health care utilization

The selection and measurement of health outcome indicators used in Section 2 and 3 on inequalities in health and health care utilization was based on (i) a comparison of indicators used in major health publications and databases, (ii) the advice of World Bank Health Specialists on recommended monitoring and measurement practice in their respective fields, and (iii) how measurable those indicators would be in the available data sources. The following major reports/databases were consulted as a guide to indicator measurement: World Bank Development Indicators, the World Bank's HNPStats database, WHO's World Health Survey country reports, and the World Bank's report series on "Socio-economic differences in health, nutrition and population (Gwatkin et al. 2007).

The data sources for this section include the Demographic and Health Surveys (DHS), World Health Surveys (WHS), Multiple Indicator Cluster Surveys (MICS) and multipurpose household surveys (such as the World Bank Living Standard and Measurement Surveys). Where the selected indicators are available in more than one of these surveys, all measures are reported.

In all analyses of inequality in this section, i.e. quintile analysis and calculation of concentration indices, households are ranked by an asset index computed using principal components analysis. In order to avoid presenting estimates biased by insufficient power, indicators were removed from the tables if the sample size in any quintile was less than the following thresholds: 250 per quintile for infant and child mortality estimates and 25 per quintile for all other indicators. This follows the practice of Gwatkin et al. (2007). In addition, the statistical significance of all concentration indices is reported.

Section 4: Benefit-incidence analysis

The section on benefit incidence analysis uses three different methods for allocating government health expenditure to households, invoking three different assumptions that are described in detail in Wagstaff (2011). The first, the constant unit cost assumption, treats the sum of individual fees and government subsidies as constant, and thus any fees paid when using public services results in a reduction in the government subsidy received. The second, the constant unit subsidy assumption, allocates the same subsidy to each unit of service used, irrespective of the fees paid. Finally, the third, the proportional unit cost assumption, makes the cost of care proportional to the fees paid, which implies that the government subsidy received increases as the fees paid increases. In calculating the distribution of fees, service utilization and government subsidies, households are ranked by per capita consumption. The quintile distributions and concentration indices are reported, including measures of statistical significance.

The data sources for this section include the WHS and multipurpose household surveys that are used to obtain information on service utilization at difference levels of care and fees paid by patients. Data on government subsidies at each level of service are obtained from National Health Accounts reports, specifically from one or more of the following tables depending on the level of detail provided: financing

source by financing agent, financing agent by provider, and provider by function, other detailed country expenditure reviews or directly from budget offices.

The limitations of the analysis depend on the data source. One limitation of using the WHS is that we only observe whether or not the individual had an inpatient and outpatient visit, but not the actual number of visits or length of stay. We also observe outpatient visits only for people who did not use inpatient care. The implications of these limitations are being investigated.

Section 5: Financial protection

Section 5 examines health insurance coverage, catastrophic health care payments and impoverishment due to out-of-pocket expenditures. In this section, households are ranked by consumption. The analysis of catastrophic health care payments follows the popular approach elaborated upon O'Donnell et al. (2008) which defines health spending as "catastrophic" if it exceeds some fraction or threshold of total expenditure, or of total nonfood expenditure, in a given period. As O'Donnell et al. (2008) note, the threshold of 10% for total expenditure and 40% for nonfood expenditure are commonly used in the literature. In addition to measures of incidence, distribution-sensitive measures of catastrophic payments are calculated, specifically the concentration index, and statistical significance is reported. The analysis of impoverishing expenditure uses the poverty lines of US\$1.25 and US\$2.00 per capita per day at 2005 purchasing power parity (PPP) (with PPP values obtained from the World Development Indicators database) and, in some cases, national poverty lines.

Data sources for the analysis of financial protection include the WHS, as well as multipurpose household surveys. Survey data on health insurance coverage is difficult to obtain for most countries.

Section 6: Progressivity of health care finance

This section examines the progressivity of different sources of healthcare financing/payments, including out of pocket payments, health insurance contributions, direct taxation and indirect taxation. The Kakwani index, defined as the concentration index minus the Gini coefficient, indicates whether payments are more/less concentrated among the better-off than consumption is and, thus, is a sign of whether payments are progressive/regressive.

The main data source needed for the analysis of progressivity of health care financing is a multipurpose household survey, preferably with a very detailed consumption module. In addition, knowledge of the local context is typically needed to make informed assumptions, such as information on income tax brackets, VAT tax rates and exemptions, excise taxes, and taxes that are earmarked for health. Where the data do not contain information on direct taxes, this value was calculated by applying official tax brackets to individual reported income. However, in low income countries characterized by high degrees of informality and limited tax collection capacity, this approach may overestimate direct payments. Where the data do not contain information on value added tax (VAT), this is derived from household consumption using official VAT rates and exemption categories, obtained from government websites and various literature. Other important assumptions about the distribution of the burden of taxation that are particular to each country are described in Annex A of the corresponding report.

ABOUT THE HEALTH EQUITY AND FINANCIAL PROTECTION REPORTS

The Health Equity and Financial Protection reports are short country-specific volumes that provide a picture of equity and financial protection in the health sectors of low- and middle-income countries. Topics covered include: inequalities in health outcomes, health behavior and health care utilization; benefit incidence analysis; financial protection; and the progressivity of health care financing. Data are drawn from the Demographic and Health Surveys, World Health Surveys, Multiple Indicator Cluster Surveys, Living Standards and Measurement Surveys, as well as other household surveys, and use a common set of health indicators for all countries in the series. All analyses are conducted using the health modules of the ADePT software. Also available are Health Equity and Financial Protection datasheets that summarize key measures of equity and financial protection.

The most recent versions of the Health Equity and Financial Protection reports and datasheets can be downloaded at www.worldbank.org/povertyandhealth.

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