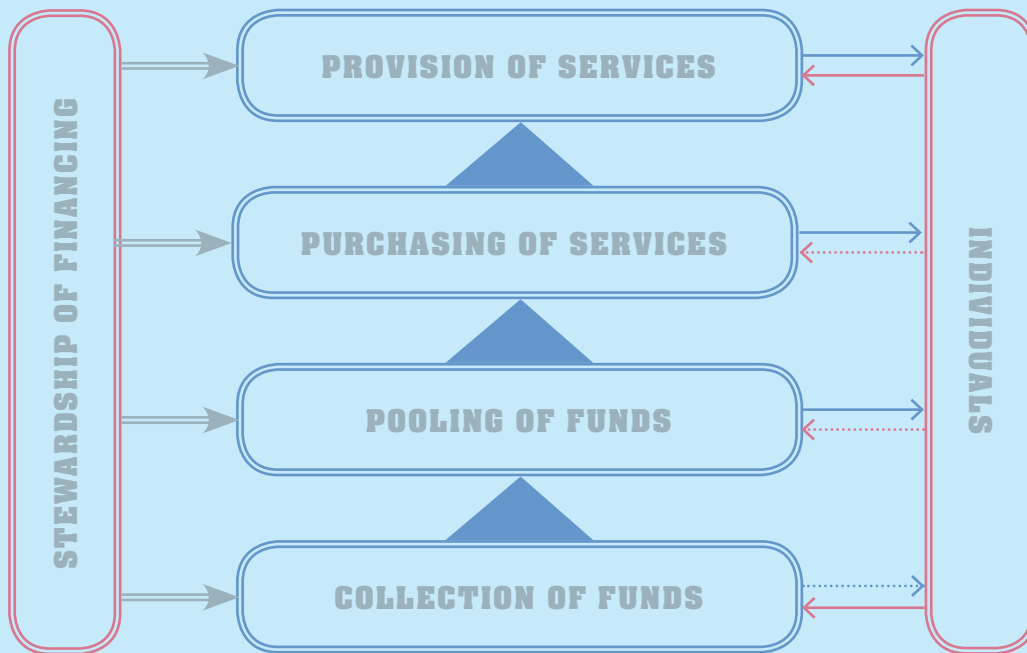




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BEHIND THE ESTIMATES OF OUT-OF-POCKET SPENDING ON HEALTH IN THE FORMER SOVIET UNION



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SPENDING ON HEALTH IN
THE FORMER SOVIET UNION**

BY: NORA MARKOVA AND RICHARD STANLEY

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ABSTRACT

The countries of the former Soviet Union rely heavily on out-of-pocket payments for health care financing. However, out-of-pocket spending statistics are difficult to compare due to different data collection methodologies. Data are collected either through demand side data collection, via household surveys, or supply side data collection, via health clinics, pharmacies, and other suppliers' data. This technical report is targeted at producers of out-of-pocket spending data, users of the WHO Global Health Expenditure Database and related publications as well as policy-makers, who wish to improve financial protection, on how to improve the relevant data through introduction of international standards of reporting such as the national health accounts. An analysis of former Soviet Union countries reveals that, all else being constant, countries that use national health accounts report 12% higher out-of-pocket spending. This is because national health accounts promotes the usage of detailed questions in surveys on household health care expenditures. Countries that rely solely on supply side information report 15% percent less out-of-pocket spending than countries with similar economic development and health priority status. The analysis strongly supports the view that national health accounts-based reporting usually based on specialized surveys increases the accuracy of out-of-pocket payments for health care.

Keywords

FINANCING, HEALTH
DELIVERY OF HEALTH CARE - ECONOMICS
POLICY MAKING
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ACKNOWLEDGEMENTS

We want to express our special gratitude to Joe Kutzin for his very useful comments and suggestions on an earlier version of this paper and to Cornelis Van Mosseveld and Patricia Hernandez Pena for the technical advice. The usual disclaimer applies. We also want to thank the members of the steering committee of the Eurasian NHA network: Baktygul Akkazieva, Alexander Turdziladze, Adyljan Temirov and Ketevan Goginashvili for the collaboration in the data collection. We thank the representatives of governments of the FSU countries, involved in the regional workshop in Yerevan, Armenia, in November, 2009 for providing the data for this paper.

EXECUTIVE SUMMARY

This is a technical report targeted at producers of out-of-pocket spending (OOPS) data, users of the Global Health Expenditure Database (WHO, 2012) as well as academics, researchers and policy-makers using publications or tools based on the database. Findings of the report provide evidence for policy-makers, who wish to improve financial protection, on how to improve the relevant data through introduction of international standards of reporting such as the national health accounts (NHA).

OOPS on health care has the potential to impoverish households and reinforce existing vulnerability through unanticipated, catastrophic expenditures. The countries of the former Soviet Union (FSU) rely heavily on OOPS for health financing. The extent of this phenomenon varies greatly due to differences in macroeconomic performance, fiscal policies, and the nature of health system reforms. Despite the widespread extent of OOPS for health care in the region and the negative consequences for households, OOPS data are not comparable across the region, thus limiting the formulation and evaluation of national and international policies aimed at reducing the burden caused by OOPS.

Conceptual Framework

We establish a new conceptual framework in order to compare reporting methods. We distinguish between demand side data collection using household surveys and supply side data collection from provider surveys of clinics, pharmacies, and other suppliers' data. There are also amalgamated approaches that combine both supply and demand side collection efforts. Household surveys including either routine or specialized health expenditure modules vary widely in their depth of detail and framing of expenditure questions, and the frequencies of enumeration. We expect that standard general question modules will be unable to distinguish between formal and informal payments. Demand side collection may also include specialized questions on household health expenditures which, in contrast to general modules, would report higher OOPS. We expect that supply side surveys on their own are unable to capture unofficial payments other than insurance co-payments. We expect that amalgamated approaches – using both supply and demand side collection – would be highly effective in estimating OOPS.

We also test the potential for OOPS reporting produced by countries committed to NHA to produce more reliable estimates relative to other countries of similar economic development and public sector size. NHA are an international tool, supported by WHO, OECD, and EuroStat, for collecting complete information about financial flows in health systems and for carrying out comparative analyses between countries. NHA are one of the largest international efforts to standardize and improve the quality of these data. The WHO Producer Guide on NHA suggests how to collect OOPS data, but it is dependent on the country team that developed NHA as to which approach to use. For those countries that have not yet attempted to improve their health expenditure data through a methodology such as NHA, internationally reported data is usually based on either general questions of health expenditure that are usually associated with large non-sampling bias, or from supply side data, which captures only part of the various OOPS. However, even among those countries with sustained commitment to NHA, statistics for OOPS are not systematically collected. However, despite these potential limitations, we expect that NHA, as it uses specialized modules, will be associated with higher OOPS.

Findings

Our quantitative analysis of FSU country data for 2001-2009 from the WHOSIS database confirms that, at similar levels of health spending and economic development, countries that use NHA report 12% higher out-of-pocket payments for health care. This finding supports our expectation that, as NHA promotes the usage of detailed health-expenditure questions in household surveys, countries would report higher OOPS. Countries that rely solely on supply side information report

15% percent less OOPS than countries with similar economic development and health priority status. The analysis strongly supports the view that NHA-based reporting increases the accuracy of out-of-pocket payments for health care in the FSU countries.

In addition to the quantitative analysis, we examined the historical context of health care systems and reforms, analysed the definitions and methodologies employed in collecting OOPS, performed in-depth questionnaire deconstructions, and reviewed statistical approaches to reconciling these data both within and between countries. Countries that have not yet produced and institutionalized data collection of OOPS in compliance with the NHA standards have produced the requested data for our review to the best of their knowledge. Following the analysis of the data, an elite group interview was conducted with the producers of OOPS data at the WHO-organized Eurasian NHA workshop in Yerevan, Armenia in November 2009.

The qualitative analysis enabled us to identify several important issues in implementing surveys. While demand side collection generally reports higher OOPS, all types of household survey data collection suffer from a series of limitations. For example, differences in the recall periods, where they are not specified or are vague or are very long, reduce the comparability of the data. Other issues further increase non-sampling errors, such as the usage of terms which may be unclear for the respondents. Another type of underreporting may occur in the general categories, where respondents might not recall all payments, or relate them to health, such as transportation, gifts, and informal payments.

Sampling errors increase with the detail of the analysis and decrease with the size of the sample. Because it is challenging in some low-income countries to obtain high response rates, it is not an uncommon practice to pay the respondents. The monetary incentive may raise the response rates of low income households, thereby affecting the sampling strategy. Another source of error arises in the use of proxy respondents – when the respondent and the patient or expender differs. Biases are also introduced when questionnaires inquire about sensitive illnesses or illegal behaviours such as the giving and taking of bribes.

Additional issues with the comparability and compilation of OOPS statistics are that they may be calculated by multiple ministerial departments, without reconciliation of different data collection approaches. Part of the differences in OOPS data collection arises from the availability of donor funding to support specialized surveys.

Recommendations

The comparability, robustness, and reliability in estimation of OOPS remain a significant problem. Methods of data collection often lag behind the changes of health care systems. Although development of international guidelines is highly limited by the spectrum of different OOPS and reporting systems in place, the systems of data collection can benefit by following some major principals linking the methods to the actual occurrence of the payments.

We make the following broad recommendations:

- The statistical analysis confirms that the implementation of NHA is associated with more consistent and internationally comparable reporting of OOPS. The NHA estimates are expected to provide a more accurate picture with regards to the actual out-of-pocket expenditures that households make to purchase health care. But, even where NHA is not followed, there are substantial benefits to incorporating specialized surveys with detailed health expenditure modules.
- Our qualitative analysis shows that there are opportunities to improve the accuracy of OOPS reporting when household surveys are used. Greater attention may be paid to how recall periods are specified, and how questions on health expenditure are framed. In this regard, we recommend that countries share information on best practices.

- At the national level, governments should adopt innovations in statistical approaches that use both demand and supply side approaches to obtaining data on OOPS, depending on the structure of OOPS in each country.
- National health policy planners should collaborate with national statistical authorities to formulate long-term planning with regard to OOPS data production, including consistency checks between questionnaires over time.

With adjustments to methodologies and strategic planning, reliable, accurate, and comparable OOPS statistics will become a more realistic goal.

I. INTRODUCTION

The dissolution of the Soviet Union resulted in the loss of centralized, universal access to health services from the Semashko public health system. In addition, during the late Soviet and early transition periods, poor economic performance caused significant decreases in government health expenditures (Borowitz and Atun, 2006; Kutzin, Cashin, and Jakab, 2010). As a result, out-of-pocket expenditures (OOPS) by households, including official and unofficial payments, have become the major source of health financing in the region. In 2007, OOPS varied between 17-74% across the region (World Health Organization, 2010).

The literature on OOPS for health care observes that they are a primary cause of households, including among the seriously ill, not seeking care, both internationally and in the region (Balabanova et al., 2004; Markova, 2009; Xu et al., 2003). OOPS further impoverishes low income households, and often represents catastrophic expenditures for the most vulnerable groups (Belli, Gotsadze, and Shahriari, 2004; Falkingham, 2004; Gotsadze et al., 2005; Gotsadze, Zoidze, and Rukhadze, 2009; Skarbinski et al., 2002; Tediosi et al., 2008). Policy-makers need valid, reliable, and comprehensive information on OOPS to shape policies that reduce the negative consequences of underutilized health care and catastrophic costs to livelihoods. Statistics for private payments for health care are essential for defining the financial protection and equity of health systems. There is no international standard for the production of OOPS statistics, capacities for data collection vary, and legal frameworks differ markedly.

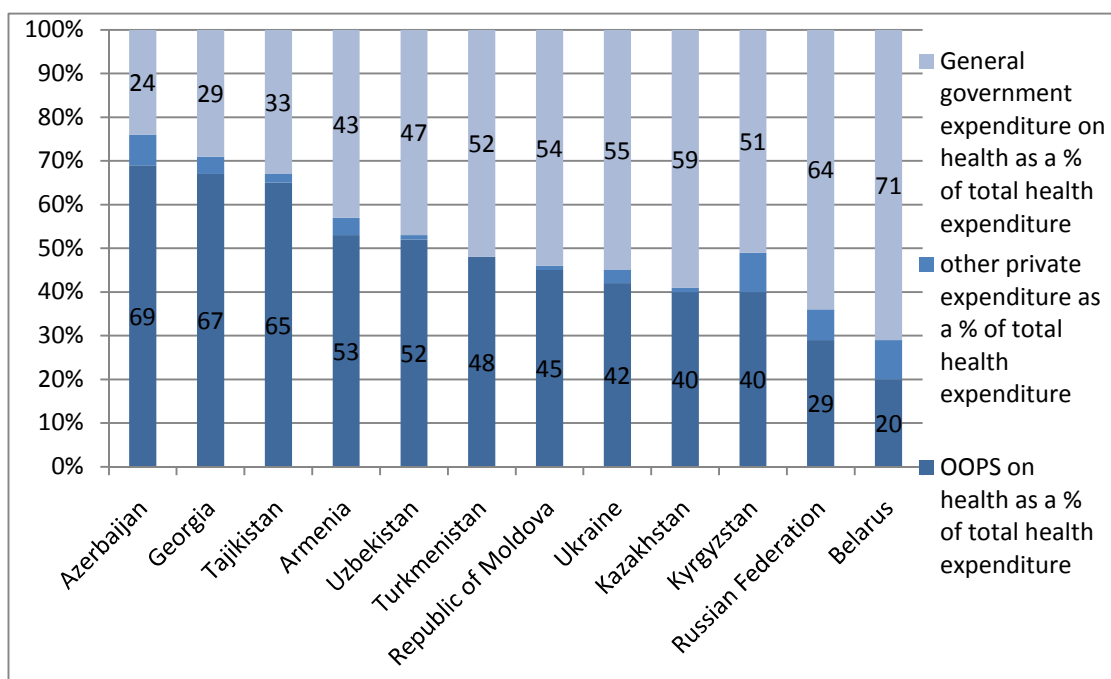
The countries of the former Soviet Union (FSU) report large differences in OOPS. This is in part due to considerable variations in the approaches the governments of the region have taken to provide, finance, and reform health care and this has affected the share of OOPS in overall health expenditures. During the Soviet era statistical agencies across the former republics carried out household budget surveys (HBS), applying similar methodologies. HBS continue to be the main sources of data in the region, however, there are now considerable methodological differences with regard to gathering data between the countries of the FSU, as well as differences within countries when HBS questionnaires differ between survey years.

Relatively few studies have investigated OOPS data reliability and comparability, despite it being a well-defined issue (Lu et al., 2009). This paper examines the determinants of OOPS reporting and finds that there are significant methodological issues used with regard to existing internationally produced data. We also highlight the opportunities available for national and international policy-makers to improve the collection and analysis of statistics for OOPS for health care and, therefore, support policies that provide financial protection for populations in order to preserve and improve their health and well-being.

Furthermore, we relate the production of data to commitments made by countries to produce national health accounts (NHA). NHA are an international tool, supported by WHO, OECD, and EuroStat, for collecting complete information about financial flows in health systems and for carrying out comparative analyses between countries. NHA are one of the largest international efforts to standardize and improve the quality of these data. The WHO producer guide on NHA suggests how to collect OOPS data, but it is fully dependent on the country team that developed NHA as to which approach to use. For those countries that have not yet attempted to improve their health expenditure data through a methodology such as NHA, internationally reported data is usually based on either general questions of health expenditure that are usually associated with large non-sampling bias, or from partial supply side data, which captures only part of the various OOPS. However, even among those countries with sustained commitment to NHA, statistics for OOPS are not systematically collected.

According to the WHO NHA database, the share of private expenditure to all health expenditures varied between 29 and 76 percent in 2009, of which OOPS is between 20 and 69 percent (see Fig. 1). This variation is partly due to the actual differences in health financing in the countries but is also a result of the differences in understanding the structure of OOPS and methods of data collection. The producers of the data have demonstrated a clear understanding of what OOPS consist of but have chosen or inherited different approaches for its estimates.

Fig. 1: Structure of total health expenditures (%) (2009)



WHOSIS 2011 WHO (2011)

Fig. 1 shows significant variations in the OOPS of the region. NHA does not always distinguish between the major categories of payments such as those borne directly by a patient, deductibles, co-insurance, co-payments and self-medication as well as formal and informal payments. Such data is often unavailable, sensitive, unreliable, and difficult for the payer to distinguish.

2. CONCEPTUAL FRAMEWORK AND METHODOLOGY

OOPS are broadly defined as payments borne directly by a patient, deductibles, co-insurance, co-payments and self-medication (OECD 2001). FSU are sharing a common past with common ability to spend for health care and similar health systems. Since the devolution of the Soviet Union there are a series of factors which have impacted the differences in reported OOPS. First, these are differences in the economic development of the newly established countries and the differences in health care systems as a result of the level of health care reforms. These factors define the ability of the public sector of the countries to cover the health care treatment of the population. Second, there have been differences in the devolution of national statistical authority and ability of the statistics to capture the economic and organizational changes in the sector. Differences are due to the actual collection methods in place which lead to false reporting. Third, differences are due to the execution of the specific data collection methods and the specific survey instruments used for the purpose. We develop a conceptual innovation in order to understand the collection and usefulness of OOPS statistics.

We propose classifying statistics for OOPS for health care based on their underlying data collection method. The productions of OOPS statistics are derived either through supply side surveys and reporting, such as from providers or funding institutions or through demand side information from household surveys. An amalgamation approach combines the supply and demand side approaches and gives a more nuanced view of the usability of OOPS statistics. The aim of this classification has four purposes: to provide reliable information for users of international NHA based data in the region on the reliability and comparability of the data; to review the methods used and outline countries whose OOPS might be over or underestimated; to provide a comprehensive list of possible OOPS data collection approaches with their associated pros and cons for countries choosing to revise their methods; to estimate the magnitude of error associated with each approach.

The distinctions between collection methods are important because it impacts usefulness for health policy-makers and analysts. Such information can help understand changes over time with regard to health equity for a particular country. Statistics for OOPS are generally not collected in a similar manner. This makes it particularly difficult to compare between countries. By establishing the difference between collection methods, this enables the systematic comparison between countries, and will provide policy-makers and analysts important information on the policy impact of OOPS on health services uptake and health outcomes. Both quantitative and qualitative approaches have been used to track the differences in collecting and reporting data on OOPS in the FSU region. The quantitative analysis examines the determinants of reliability of the survey method's instruments. We use ordinary least squares regression (OLS) to regress the level of OOPS on the types of collection. We control for the economic development of the country, size of the public sector and priority given to health. The analysis confirms that our conceptual framework explains a great deal of the variation in OOPS.

We also reviewed the existing literature, relevant questionnaires, and then conducted a workshop with the producers of OOPS data. The purpose of this group interview was to discuss the differences in understanding of the categories and approaches based on the provided information. Upon request, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, the Republic of Moldova, the Russian Federation, Uzbekistan, Turkmenistan, Tajikistan, and Ukraine have provided detailed explanations of the methodologies that they use in OOPS data collection for the production of NHA, a sample of their surveys, and definitions and detailed explanations of their sampling methods. Countries that have not yet produced and institutionalized data collection of OOPS in compliance with the NHA standards have produced the requested data to the best of their knowledge. Following the analysis of the provided data, an elite group interview was conducted with NHA or relevant health statistics officers appointed by the Ministers of Health of the countries at the Eurasian NHA workshop organized by WHO in Yerevan, November 2009

(except Azerbaijan, whose representatives have been consulted additionally). The next section provides a detailed discussion of the countries' experiences in collecting OOPS data.

3. DATA COLLECTION APPROACHES

Statistics for OOPS are derived through two approaches: demand and supply side collection. Demand side collection is via one of a wide range of household surveys that can vary significantly with regard to the focus of the survey, level of detail in the health-related module, actual questions, and recall period. Supply side collection can include information from the financing institutions, provider surveys or reporting, such as from clinics, pharmaceutical retailers, and other service providers as well as insurers surveys or reports. The national statistics offices of all FSU countries carry out supply and demand side surveys within their national statistical programmes; however, for the purpose of reporting OOPS, some countries apply only one or both of these approaches. This does not imply that consistent methods are being applied to calculations over time. Table 1 provides an overview of the collection approaches used in the countries of the FSU for reporting of OOPS.

Table 1: Data collection approaches in the FSU countries for reporting OOPS

Country	NHA	Supply	Demand General survey	Demand special module	Demand OOPS specific	Surveys
Armenia	2004-2008	X	X	X (LSMS 1996)	X (2006, 2009)	HHIS, LSMS, NHA special survey
Azerbaijan	NO		X			HBS
Belarus	NO		X			HBS
Georgia	2001-2008		X	X (SHINDA 1996-2010) (SHEUMS 2000)	X (HUES 2007, 2010)	SHINDA, SHEUMS, HUES
Kazakhstan	2006-2007	X	X	X (2001)		HBS, Health module
Kyrgyzstan	2004; 2006-2008		X	X(2001, 2004, 2007, 2010)		KIHBS, Health module
Moldova	NO		X			HES
the Russian Federation	2001-2008	X		X (2004)		SRT
Tajikistan	2007-2008		X	X (2007)		LSMS
Turkmenistan	NO	X				
Ukraine	2003-2008		X	X (2004)		HBS, Health module
Uzbekistan	NO		X			HBS

Abbreviations:

HHIS: household integrated survey; HBS: household budget survey; HES: household expenditure survey; KIHBS: Kyrgyz integrated household budget survey; HUES: health utilization and expenditure survey; LSMS: living standards measurement survey; SHINDA: household integrated survey; SHEUMS: survey on population's health care expenditures and unrecorded medical service; SRT: survey of the Russian Treasury

Notes:

Armenia: A specialized survey is conducted – health care organizations and drug stores and household expenditures for health care services. 2006 survey has a recall period 2005 and 1st half of 2006; 2009 has a recall period 2008

Georgia: household integrated survey: SHINDA incorporates both purpose of HBS and LSMS. This surveys has quarterly and annual versions. In 2000 was conducted SHEUMS. NHA specific surveys: HUES were carried out in 2007 and 2010.

Kazakhstan: reporting via a standard form by both public and private health facilities. The health module in HBS does not include expenditures after 2001.

the Russian Federation: reporting via a standard form by both public and private health facilities.

Ukraine: in 2004 one off survey on detailed health expenditure was carried out by State Statistic Committee.

Demand side approach

The demand side approach usually utilizes the HBS with a general short health section, or additionally includes a specialized detailed module on health expenditures, or a module designed in a way that is directly aligned with NHA. The HBS are routinely carried out by each country on a monthly, quarterly or yearly basis. Both types of OOPS specific surveys can provide detailed statistics, and expenditure data by functions and providers. However, there are no internationally accepted guidelines with regard to rectifying results between those surveys using detailed data and other general surveys that utilize short health sections and aggregated questions.

The general questions included in the HBS ask broad questions on health care expenditure. It is left to the respondent to make the determination as to which payments should be included in survey responses. In other words, such questionnaires leave the interpretation of OOPS up to the respondents. Such an approach is applied in Azerbaijan, Belarus, the Republic of Moldova and Uzbekistan (Table 1). This problem tends to be more prominent in generalized questionnaires because the level of detail in the health expenditure section is limited. (Table 2 provides an example of the structure of questions).

Some countries have overcome this problem by including specialized modules with more detailed questions, usually carried out as part of HBS for certain selected years. Kazakhstan, Kyrgyzstan and Ukraine have developed detailed health expenditure modules. Armenia and Georgia have developed a specialized module that falls into the framework of NHA to capture OOPS. The difference between NHA specific surveys and the detailed health modules is that the questionnaires of the first type are designed particularly with the purpose to feed data into the NHA tables, while the others might be more focused on answering other specific policy questions. Regardless as to their primary purpose, both types provide detailed analyses of financial protection and equity of the health system in place.

HBS are carried out monthly, quarterly or annually, thus providing more systematic data series. The specialized surveys and modules are usually carried out once every two or three years depending on the availability of funding. Often, in these cases sustainability of the process may be challenging because it is dependent on external funding. Armenia and Georgia have managed to overcome this issue by shifting from LSMS to an NHA module integrated into the HBS (Table 1).

Some countries try to capture all possible payments by asking the respondent to itemize different types of expenses (i.e. HUES, KIHBS). Lu et al (2009) found that this approach gives significantly higher level of OOPS as compared to single item measures. Itemised questions are relatively more accurate because they remind the respondent of categories which may otherwise be omitted, but health expenditures may be over-reported. Thus, there is likely an overstatement of the magnitude

of the difference in the share of OOPS in total health spending reported for countries that base their estimates on detailed itemised questions.

Production of specific surveys designed to capture the detailed OOPS data is linked to various constraints and problems. They are expensive and time consuming and may strain statistical capacity and resources. Because it is too expensive to produce detailed OOPS data every year, countries run into the problem of producing duplicate national data over time by using the general and the specific OOPS surveys. As a result, in the countries where both types of surveys are carried out, there are discrepancies on health expenditure statistics between these two official sources. What often occurs is that national statistics officials report their figures while the ministries of health use the data from the specialized survey.

Even when carried out less often, as long as they are regular, OOPS-specific surveys, combined with methods of triangulation, can provide relatively reliable data. The actual years of such surveys are provided in Table 1 and they can serve as a reference of reliability for OOPS data. In general, countries which have developed specific surveys have more accurate data in comparison to countries where no attempts to measure OOPS have been made and where estimates can be expected to be underestimations of the reality. Even where specific attempts are employed to measure OOPS, discontinuation of these surveys makes the extrapolated figures less reliable over time. For example, in Ukraine and the Russian Federation the last specific OOPS surveys were conducted in 2004 and in Kazakhstan in 2001 (Table 1).

Supply side approach

Supply side data collection is based on the (legally mandated) national statistics each country gathers from service providers and pharmaceutical retailers. However, only several countries in the region, such as Armenia, the Russian Federation and Kazakhstan, apply this approach when reporting the OOPS within the framework of NHA. However, the greatest limitation of the supply side survey instruments are that they do not capture informal payments, and often only capture formal co-payments, and fees for service, though this also varies. Supply side collection also excludes payments that are not properly accounted for, such as payments without a receipt. Another major problem that this approach may meet is the coverage of the private sector. In Uzbekistan for example, private health care providers are registered under the law for small companies and there are legal barriers for expanding the statistical burden imposed over such enterprises.

Amalgamation approach

Only a few countries in the region, such as Armenia and Kazakhstan, combine information from both sources. In Armenia, data from pharmacies is collected to capture the pharmaceutical OOPS. These data are very comprehensive and more reliable than the data that can be captured from a demand side data collection method. This is because the information from the household survey can be placed in perspective with the size of the other OOPS that are not captured by supply side data collection methods. This approach provides health expenditure data from the perspective of all agents involved in the health system and attempts to balance all data sources and allows for a reconciliation of the different data sources. It contrasts the data sources with each other, identifies and assesses discrepancies, and takes into account their respective strengths and weaknesses, in order to obtain a composite estimate of actual expenditures, which reflects all the available information (Rannan-Eliya and Lorenzoni, 2010). Though it entails more effort and expense than relying on a single data source, it yields results that are more robust, consistent, comprehensive, and of a higher quality than the original data sources.

4. STATISTICAL ANALYSIS

Based on our conceptual framework and the background and qualitative analysis, we test our model for explaining differences in OOPS. Our foremost theoretical test is how differences in the approach to gathering OOPS data impact their reported levels. Our source of OOPS data are from the WHOSIS data for 2001-2009 for the FSU countries and apply the information collected from the Eurasian NHA network on the methods of data collection for the same years (Table 1).

We coded several dummy variables that represent existence of NHA production for each year; old demand side short modules in HBS versus specialized health modules in the household surveys (from the year of implementation when an NHA is present to utilize the data) or only supply side information; additional dummy is added for countries which collect both supply and demand side information.

We include also the factors, which predetermine the existence of OOPS, so that we compare countries at similar ability to pay for health care and priority given to health. The determinants used in the analysis are presented in Table 2.

Table 2: Determinants of cross-national differences in OOPS for FSU Countries

Determinant	Measure
Economic development	Gross domestic product (GDP in int\$)
Size of the public sector	General government expenditure as a proportion of the GDP
Priority given to health (differences in health care systems and reforms)	General government health expenditure as a proportion of the general government expenditure
Devolution of national statistical authority	Existence of NHA
Only supply side approach	Variable coded by the authors
Demand side short questionnaire	Variable coded by the authors
Demand side specialized health module	Variable coded by the authors
Supply and demand approaches	Variable coded by the authors

Our first analysis tests those factors associated with levels of OOPS.

Table 3: Results of linear (OLS) regression of the OOPS in FSU 2001-2009

Variable	Coefficient	P(t)
Priority given to health	-3.12	0.00
Size of the public sector	-0.88	0.00
GDP in int\$	-0.00	0.00
NHA	11.61	0.00
Only supply side approach	-15.30	0.00
Demand special module	-2.91	0.32
Supply and demand	-10.98	0.00
Constant	109.70	0.00

Adjusted R-squared is 0.79 which shows a very good model fit. As expected, economic development, the size of the public sector and the priority that countries give to health are highly significant on the level of OOPS. This confirms that the state and level of economic development are important factors in the financial risk of the population to ill health. Regardless of the systematic differences between the countries, the analysis shows that changes in the collection of health expenditure data are also associated with significant differences in levels of OOPS. Countries that have introduced NHA have nearly twelve percent higher reporting of OOPS. Countries which rely only on supply side information report fifteen percent less OOPS for similar economic development and health priority status.

The only factor which has not been significant in this model is the difference between the general surveys traditionally produced by the countries and the introduction of specialized health modules. Most countries have introduced special health modules when producing NHA so we can expect that there will be co-linearity between the two variables. So in order to explore the effect of the different data collection approaches we run a second model which excludes the NHA existence variable and in this case the effect captured by the improvement of the survey instruments is highly significant. Model fit for the second model has adjusted R-squared 0.76, which although lower shows high explanatory value. Countries which have introduced special health modules report higher OOPS. And those using only supply side data have much lower reporting.

Table 4: Linear regression of the OOPS in FSU 2001-2009 excluding NHA

Variable	Coefficient	P(t)
Priority given to health	-3.36	0.00
Size of the Government	-0.76	0.00
GDP in int\$	0.00	0.00
Only supply side approach	-9.38	0.01
Demand special module	6.39	0.00
Supply and demand	-6.93	0.03
Constant	107.47	0.00

An unexpected result is that countries that combine both supply and demand side data tend to have lower OOPS reporting. The two countries which use amalgamation approach are Armenia and Kazakhstan and they also have special modules on health expenditure. Therefore the reporting for these countries will be similar to that in countries with short modules if we combine the effect of the specialized demand approach and amalgamation approach. Nevertheless, the lower reporting for countries using amalgamation approach compared to those with short household questionnaires is hard to explain. The lower reporting can be attributed to higher reliance on the supply side figures or actual specificity of the survey instruments used such as the very long recall period in Armenia and the outdated survey data in Kazakhstan, which will be analysed in the next section.

5. Questionnaire deconstruction of demand side surveys

This section identifies, from our qualitative analysis of questionnaires and survey implementation, the areas which provide more insight into interpreting the results from the statistical analysis.

We identify several important issues in the implementing of surveys and questionnaires. While demand side collection generally reports higher OOPS, all types of household survey data collection suffer from a series of limitations. For example, differences in the recall periods, where they are not specified or are vague or are very long, reduce the comparability of the data. Other issues further increase non-sampling errors, such as the usage of terms which may be unclear for the respondents. Another type of underreporting may occur in the general categories, where respondents might not recall all payments, or relate them to health, such as transportation, gifts, and informal payments.

All types of demand side data collection suffer from a series of limitations, such as sampling errors, which increase with the detail of the analysis and decrease with the size of the sample (for a detailed discussion see Rannan-Eliya and Lorenzoni, 2010). Non-sampling errors include the inability of the respondent to have a comprehensive understanding of the question when it includes terminology or multiple categories that are not specifically outlined; recall of events, which becomes more problematic with increase of the recall period; and the use of proxy respondents, when the respondent and the patient or expender differ. Biases are also introduced when questionnaires inquire about sensitive illnesses or illegal behaviours such as the giving and taking of bribes.

Our review of the specialized health expenditure modules indicates that there is a significant degree of subjectivity and differences between the framing of questions. Some countries (i.e. Georgia and Kyrgyzstan: Table 5) try to capture all possible expenses by asking the respondent to itemize different types of expenses. Lu et al (Lu et al., 2009) found that this approach gives significantly different results from single item measures, where the itemized results show higher level of OOPS. Itemized questions are much more accurate because they remind the respondent of categories which may otherwise be omitted. The danger in such an approach is that health expenditures may be over-reported in comparison to the other household expenditures, which are captured by more general questions. As a result, the proportion of health expenditure in the household may be overstated.

Table 5: Examples of questions

<p>Example 1: a question in the generalized questionnaire (Moldova)</p>	<p>Indicate the expenses (in Lei) borne during the month under survey for</p> <ul style="list-style-type: none"> a. consultations, analyses, diagnoses; b. treatment in the hospital, including consultations, analyses, surgical interventions etc; c. dentist's services; d. procurement of drugs (separately for each item)
<p>Example 2: a question in the generalized questionnaire (Belarus)</p>	<p>How much did you pay for medical services and where did you pay them? (<i>table</i>)</p> <p>By service: consultation and diagnostics; dental; cosmetic; sanitation and prophylactics; drug services; medical massage; other;</p> <p>By location: hospital; polyclinic; dispensary; private health organization; private doctor; other person; other</p>
<p>Example 3: a detailed question in the special health module (Kyrgyzstan)</p> <p><i>(this is an extract of a detailed questionnaire)</i></p>	<ul style="list-style-type: none"> a. In the past 30 days has [NAME] applied for medical assistance for any reason ... k. Did you have to pay the person whom you consulted? l. How much did you pay this person? m. Were you given a receipt for these charges n. Did you make any gifts (money, food, jewelry, etc.) or provide any services to this person, besides the payment? If yes, what was the value of the gift or services? Enter the value of the gift, of no gift zero. o. Was the gift given before, during or after the consultation? p. Did you give it as a gift or was it requested by the person? q. Did you have to make any other payments, including payments for laboratory tests, in connection with the consultation? If yes, how much was paid?
<p>Example 4: A detailed question in the special NHA health module (Georgia)</p> <p><i>(this is an extract of a detailed questionnaire)</i></p>	<ul style="list-style-type: none"> a. (questions on utilization of the PHC services and types of morbidity) ... k. What are your usual MONTHLY costs for treating this condition for: medications; medical supplies such as bandages etc.; herbal or homeopathic remedies and similar; consultation fee; nursing, physiotherapy and similar support services? l. What were your costs over the last 12 MONTHS for diagnostic services? Total Break down if possible: Clinical and laboratory diagnostics; X-ray; Ultrasound; Tomography; Other (specify)? m. What were your costs over the last * 12 MONTHS * for medical equipment (crutches, wheelchair, infusion pump, etc.)? n. Total amount paid for self-treatment over the last 30 days: medications; medical supplies; medical equipment?

Differences in the recall periods and the division of questions in the expenditure modules further increase non-sampling errors and reduce the comparability of the data. The divisions of categories and recall periods in the surveys, which countries use is presented in Table 6.

Table 6: Recall periods for selected countries

<i>Country</i>	<i>Recall Period</i>
Armenia	Recall period in the HHIS is one month and is by type of provider (inpatient, outpatient, private, alternative medicine); while in the NHA specific survey the data is for the one year preceding the survey and information is by type of provider and service.
Azerbaijan and Kazakhstan	Collect data for the last one, two and three months by type of provider.
Belarus	Collects data from pharmaceuticals for the last one, two and three months, while for data by type of provider and service recall period is unspecified.
Georgia	For SHINDA 04 (quarterly) and SHEUMS recall period is three months (excluding chronic disease three years and pharmaceuticals one month in SHEUMS). In SHINDA 09 (annual) and HUES recall periods for outpatient and inpatient health care are 30 days and 12 months accordingly by type of provider and service.
Kyrgyzstan and Tajikistan	Recall periods for outpatient and inpatient health care are 30 days and 12 months accordingly by type of provider and service.

Some of the main problems associated with the differences of the recall periods relate to the lack of precision such as the case of Belarus (Table 6), where recall period is not specified and it is left to the respondent to decide.

Other countries use very long recall periods such as Armenia, where the expenditure data relates to the entire preceding year and the error related to the recall of events can be expected to be greater than in other surveys that use the last month.

Further error might occur due to categorical misspecification and the usage of terms which might be unclear for the respondents such as distinctions between treatments vs. prophylactic and sanitation in the example of Belarus (see Table 5). Another type of reduced reporting may occur in the case of general categories such as the case in Moldova where respondents might not recall all payments or relate them to health such as transportation, gifts, and informal payments (see Table 5).

These sources of potential bias and error are areas in which the implementation of OOPS reporting can improve with regard to demand side data collection.

6. RECOMMENDATIONS

There are opportunities for policy-makers to improve the collection and analysis of statistics for OOPS for health care and, therefore, support operational and strategic policies for better equity and financial protection of populations that preserve and improve their health and well-being. The validity and reliability of OOPS statistics are severely limited due to gross differences in estimation techniques, with broad-based household surveys introducing varying biases, and provider surveys unable to capture informal payments or, in some cases, the expenditures in the private sector, which in some countries represent large proportions of health expenditures. Another issue that should be considered is the extent of the health reforms that have taken place in each of the countries and the differences in methods that have been adopted to reflect the reporting of these differences. Equally important are the lack of changes in the reporting system, which may no longer be capturing the changes in health expenditure.

Divergence in health systems requires, in the general case, divergence in the methods of tracking and validation, including and excluding the different types of OOPS, so they can best be captured by the final data. Nevertheless, some general recommendations can be put in place in order to improve the validity, reliability and comparability of international OOPS data.

Methods of data collection should generally be chosen on the basis of the structure of the payments in a particular country. For example, a country that has primarily a cost-sharing mechanism for drugs can put in place a system of data collection in pharmacies, while a country that has a large proportion of informal payments would only be able to capture them with household surveys. Nevertheless, reality is rarely that simple and therefore wherever possible, both methods should be applied and data should be cross-referenced. Generally the demand side approach can ensure that all types of payments are included in the data, while the supply side approach provides a more precise, valid and reliable data for the type of expenditure it intends to capture.

Even when data are produced through demand and supply side methods, a systematic methodology is required as well to estimate and weigh the results. Often, household expenditures are calculated by multiple ministerial departments, with one reporting data without using the data produced by the other. Furthermore, usable data are often not incorporated into calculations, absent a clearly articulated methodology to reconcile national accounts approaches, with supply and demand side collection efforts. National statistical policy does not appear to be integrated with the needs of health policy. The result is that even where there are multiple methods being employed to gather data, there is inconsistency in results and incomparability over time. There are areas where providers' information can be much better to use (i.e. drugs in Armenia, where there are no informal payments in this sector so the data from providers is more comprehensive).

Data production should also have a long-term focus as questionnaires modules appear to be written on an ad-hoc basis. Health policy should be integrated with national statistics policy and capacity. Good data is far more difficult to produce for a first time than it is to sustain but, unfortunately, international experience shows that such efforts can remain a one off exercise. In production of such data there is a constant tradeoff between price and quality but regularity of the cycles is essential for sustaining quality and capturing the trends, which is crucial for fulfilling the initial purpose of providing the evidence for the policy-makers. Integration of the production of health data is essential for comparability at national and international level.

We make the following broad recommendations:

- The statistical analysis confirms that the implementation of NHA is associated with more consistent and internationally comparable reporting of OOPS. The NHA estimates are expected to provide a more accurate picture with regards to the actual out-of-pocket expenditures that households make to purchase health care. But, even where NHA is not produced, there are substantial benefits to incorporating specialized surveys with detailed health expenditure modules.

- Our qualitative analysis shows that there are opportunities to improve the accuracy of OOPS reporting when household surveys are used. Greater attention may be paid to how recall periods are specified, and how questions on health expenditure are framed. In this regard, we recommend that countries share information on best practices.
- At the national level, governments should adopt innovations in statistical approaches that use both demand and supply side approaches to obtaining data on OOPS, depending on the structure of OOPS in each country.
- National health policy planners should collaborate with national statistical authorities to formulate long-term planning with regard to OOPS data production, including consistency checks between questionnaires over time.

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