

Analysis of household expenditure on healthcare in Argentina, as a component of universal health coverage

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Abstract *The 2010 World Health Report of WHO established a conceptual framework for the analysis of the components of Universal Health Coverage; three dimensions were suggested: services coverage, financial coverage, and population coverage. Within this framework, health-related spending of argentine households for the year 2012-2013 are analyzed. The analysis was performed on data retrieved from the National Survey of Household Expenditure 2012-2013. Household healthcare expenditure indicators were built following Sherri's proposal (2012) and multivariate models were defined to identify determiners of household spending. Results indicate that catastrophic spending situations affect 2.3% of the country households, whereas impoverishment resulting from spending on healthcare was detected in 1.7% of them.*

Key words *Healthcare financial resources, Universal coverage, Public health*

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Introduction

The 2010 World Health Report drafted a conceptual framework for analyzing the components of universal health coverage¹, suggesting three dimensions:

- a. The range of services to be made available (which services are covered),
- b. The proportion of the total cost which is covered by insurance or other solidarity mechanisms for risk coverage (proportion of the costs covered), and
- c. The proportion of the population covered (who is covered).

Within this analysis framework, the first dimension implies the objective of enabling everybody to obtain the healthcare services they require, whereas the second dimension aims to prevent the population from facing financial difficulties when paying for health services they may need. The third dimension is related to the distribution of coverage throughout the various population groups, and stresses the importance of achieving coverage equity by gender, age, place of residence, migrant status, ethnic origin, and income level². Consequently, universal health coverage requires financial and organizational structures capable of providing coverage for the entire population.

Within this context, improvements in accessibility aim at gradually removing the financial barriers to healthcare and averting impoverishment that may result from spending on healthcare. Accessibility is also related to spending on health as a fraction of total home spending; this financial protection results in the minimization of out-of-pocket payments and in compensation for illness-related losses of productivity. This financial protection addresses, among other things, the risk of impoverishment associated to catastrophic health events, out-of-pocket payments, and transportation costs to reach health centers, particularly in rural areas³.

A way to provide financial protection for the population is to implement a system of social health insurance, which is a strategic result of a policy of social security based on the principles of solidarity and universality⁴. This financial protection mechanism consists of a series of payments of certain amounts, that permit the perception of a certain amount in the case of occurrence of events⁵; this amount covers a part of the natural risks of disease over a life-cycle.

The purpose of this study is to analyze the spending of argentine households on health-re-

lated events during 2012, within the framework of analysis of universal health coverage, with a focus on financial coverage.

Methodology

Type of study

The analysis was performed on secondary databases retrieved from the National Survey of Household Expenditure of Argentina (ENGH by its Spanish initials) which was carried out in urban districts over the period March 2012-March 2013. In this study, the unit of analysis is the household, because decisions on the allocation of resources to pay for healthcare of its members are frequently made by the family^{6,7}.

Source of data

The National Survey of Household Expenditure 2012-2013⁸ surveyed the whole country, using a probabilistic, multi-stage, and stratified sample extracted from the Master Sample of Urban Housing of Argentina, obtained from the National Census of Population, Households, and Housing of 2010. This study comprises a total number of 20895 surveyed households.

The public body in charge of the Census design was the National Census and Statistics Institute (INDEC, by its Spanish initials); the household surveys were carried out by the statistics offices of each province.

The main purpose of the National Survey of Household Expenditure 2012-2013 was to gather information on the living conditions of the population and households, regarding their participation in the distribution and procurement of goods and services.

Data in expenditure was gathered using a combination of two acquisition methods. For daily expenditure (food, public transportation, cigarettes, etc.), household members were asked to fill in questionnaires during the week of the survey. For other expenditure, households were interviewed and questioned about spending incurred during various reference periods (last month, last two months, last six months, and last year, depending on the type of spending.)

Spending was recorded according to the criterion of the moment of acquisition, i.e. the cost of goods and services procured for the household during the reference period, independently of whether they were consumed or not, or whether

the debts were completely paid or not during that period.

Current spending comprises both the household spending for consumption and that not related to consumption. Consumption expenditure is the market value of all goods and services, both paid in cash or by installments, incurred by households in order to satisfy their needs. It includes the cost of goods and services acquired by household members for individual and family consumption, or to be given as presents; the goods and services that the household obtains for its use from a business of its own; and the goods that the household produces for its own consumption.

Consumption spending is divided in nine areas: food and drinks, various goods and services, education, home equipment and maintenance, entertainment, clothing and footwear, real estate, fuel, water and electricity, healthcare, transportation, and communications.

To reduce the variables income and spending to a monthly equivalent, the following coefficients are used: weekly spending is multiplied by 4.3; two-month spending is divided by 2; six-month spending is divided by 6, and annual spending is divided by 12.

As regards family income, when compared to estimates of national income accounting^{9,10}, household surveys may be somewhat restricted by lack of answers or understatement of incomes, particularly when gathering the income of the wealthiest quintiles⁶. This leads to the assumption that the statistical bias is directly related to the volume of missing data.

The household consumption expenditure surveyed by the ENGH 2012-2013 includes medical products and therapeutic accessories (medicines, first aid items, medical devices and accessories) and healthcare services (prepaid medical assistance, medical and odontological consulta-

tions, hospitalization, childbirth, physical therapy, clinical laboratory tests, and radiographs.)

Indicators

Three basic indicators were developed, taking into account two dimensions of household health expenditure, and following the approach suggested by Sherri²: a) the incidence of catastrophic health spending resulting from out-of-pocket payments; and b) the incidence of impoverishment resulting from out-of-pocket payments for health-related events. The operational definitions of these indicators can be seen in Chart 1.

Statistical analysis

Descriptive analyses by jurisdiction were performed first and then, in order to model the determiners of household healthcare expenditure in Argentina, the variable "Out-of-pocket healthcare spending as a percentage of total household expenditure" was developed. It is a continuous variable, being a percentage, it is restricted to the range 0-100.

The dependent variable is censored at two points, 0 and 100, i.e. not all values of the variable are observed, since they are limited to the right and to the left: all values below 0 are truncated to 0, and all values above 100 are truncated to 100. For instance, it is possible that for some households, healthcare spending is above their available monthly spending (as in the case of a household with an available spending of \$10,000 that has to spend \$15,000 on surgery for one of its members); in this example, though healthcare spending as a percentage of the available spending exceeds 100, the percentage is taken as 100.)

The fact that a household may report no health expenditure is not assumed as an ab-

Chart 1. Indicators and their operational definitions.

| Dimension | Indicator: operational definition |
|---|--|
| Catastrophic spending in healthcare | |
| a. Incidencia del gasto catastrófico en salud debido a pagos directos de bolsillo | a.1. % de hogares cuyos gastos en salud exceden el 30% del gasto total del hogar. a.2. % de población cuyos gastos en salud exceden el 40% de los gastos no-alimentarios. |
| b. Incidencia del empobrecimiento debido a los pagos directos de bolsillo | b.1. % de hogares cuyos gastos en salud los sitúa por debajo de la línea de pobreza. |

sence of spending, but as an indication that their spending is less than the amount they are willing to spend; in this case, their spending is truncated to 0. This follows the criterion proposed by James Tobin¹¹; thus, the dependent variable was modeled by a Tobit regression. Regressor variables were selected following the available literature¹²: gender, occupational status, educational level and healthcare coverage of the head of the household, number of household members who are below 14, number of household members above 65, and decile of total household income. From this data, the latent variable “Out-of-pocket healthcare spending as a percentage of total household expenditure” was calculated.

Ethical considerations

This study uses public access databases from the web site of the National Census and Statistics Institute. This organism has codified individual data to protect the identity of the surveyed individuals; this prevents profiling concrete persons without harming the statistical usefulness of their data (Section 10 of Law N° 17622, which created the National Census and Statistics Institute.)

Results

51.9% of households reported a health spending equivalent to zero, whereas the mean for health spending as a percentage of the total household expenditure was estimated at 3.95% (SD 8.72); these figures show that 72.3% of analyzed households were below the media.

The following is an analysis of 3 indicators:

- Households whose spending is higher than 10% of total household expenditure,
- Households whose spending is higher than 40% of total household expenditure exclusive of food, and
- Households with impoverishment resulting from out-of-pocket payments for healthcare.

For the first indicator, 2.3% of households were identified as having health spendings higher than 30% of total household expenditure; moreover, it was found that in 11 provinces this type of spending has a percentage which is above the total for the country, namely: Autonomous City of Buenos Aires, and provinces of Buenos Aires, Córdoba, Corrientes, Entre Ríos, Formosa, La Pampa, Mendoza, San Juan, Santa Fe and Tucumán (Table 1).

For the second indicator, 3% of households reported a health spending higher than 40% of total expenditure exclusive of food; it was also noted that the situation is worse in the provinces in which the previous indicator was measured; besides, the province of Jujuy appears as having a higher proportion of households with this type of health spending (Table 1).

As regards impoverishment resulting from out-of-pocket payments for health events, it was first deemed necessary to estimate the poverty line from the 2012 National Survey of Household Expenditure. This led to a poverty rate of 4.5% of households, which is deemed acceptable as compared to INDEC estimates based on the Permanent Survey of Households for the same period, which reported a rate of 4.0%¹³. Thus, it was noted that 1.7% of households fell below the poverty line as a result of out-of-pocket payments for health-related events. For this indicator, there are also provinces that show a higher percentage than the country total, namely Corrientes, Chaco, Formosa, La Rioja, Misiones, Salta, San Juan, Santiago del Estero and Tucumán (Table 1).

As explained in the Methodology section, a model was devised for estimating the dependent variable “Out-of-pocket healthcare spending as a percentage of total household expenditure”, with double censoring to bring it within a range from 0 to 100, which leads to observation of the latent variable (the actual percentage of healthcare spending) for values less than 100 and higher than zero.

The variable “occupational status of the head of the household” was disregarded because it was found to be non-significant. Table 2 shows the results of estimation of household health expenditure.

Coefficients indicate that the addition to the household of one 14-year-old member entails an increase of 2 percentage points for the latent variable. For the addition of senior adults, there is an increase of 26 percentage points in the latent variable healthcare spending as a percentage of total household expenditure.

The education level of the head of the household also influences positively the latent variable: a higher education level is associated to an increase of 9 percentage points; this is also true for the income decile, since one unit of increase in the income decile implies an increase of 12 percentage points in the latent variable healthcare spending as a percentage of total household expenditure. Therefore, it is possible to hypothesize that a higher education level corresponds to a

Table 1. Distribution of households per jurisdiction, according to the type of out-of-pocket spending on healthcare, for the year 2012. ENGH. INDEC. (n = 20895).

| Jurisdiction | Households whose healthcare spending exceeds 30% of total household expenditure | | | | Households whose healthcare spending exceeds 40% of non-food spending | | | | Households with impoverishment due to out-of-pocket payments | | | |
|---------------|---|------|-----|-----|---|------|-----|-----|--|------|-----|-----|
| | No | | Yes | | No | | Yes | | No | | Yes | |
| | n | % | n | % | n | % | n | % | n | % | n | % |
| CABA | 600 | 94,2 | 37 | 5,8 | 601 | 94,3 | 36 | 5,7 | 634 | 99,5 | 3 | 0,5 |
| Bs. Aires | 2251 | 97,3 | 63 | 2,7 | 2232 | 96,5 | 82 | 3,5 | 2280 | 98,5 | 34 | 1,5 |
| Catamarca | 889 | 98,8 | 11 | 1,2 | 881 | 97,9 | 19 | 2,1 | 889 | 98,8 | 11 | 1,2 |
| Córdoba | 651 | 96,4 | 24 | 3,6 | 650 | 96,3 | 25 | 3,7 | 670 | 99,3 | 5 | 0,7 |
| Corrientes | 988 | 96,9 | 32 | 3,1 | 981 | 96,2 | 39 | 3,8 | 973 | 95,4 | 47 | 4,6 |
| Chaco | 826 | 99,2 | 7 | 0,8 | 822 | 98,7 | 11 | 1,3 | 817 | 98,1 | 16 | 1,9 |
| Chubut | 758 | 97,8 | 17 | 2,2 | 755 | 97,4 | 20 | 2,6 | 771 | 99,5 | 4 | 0,5 |
| Entre Ríos | 685 | 97,4 | 18 | 2,6 | 682 | 97,0 | 21 | 3,0 | 696 | 99,0 | 7 | 1,0 |
| Formosa | 939 | 96,9 | 30 | 3,1 | 927 | 95,7 | 42 | 4,3 | 943 | 97,3 | 26 | 2,7 |
| Jujuy | 1001 | 98,0 | 20 | 2,0 | 987 | 96,7 | 34 | 3,3 | 1005 | 98,4 | 16 | 1,6 |
| La Pampa | 790 | 97,2 | 23 | 2,8 | 787 | 96,8 | 26 | 3,2 | 811 | 99,8 | 2 | 0,2 |
| La Rioja | 965 | 98,2 | 18 | 1,8 | 958 | 97,5 | 25 | 2,5 | 953 | 96,9 | 30 | 3,1 |
| Mendoza | 651 | 97,5 | 17 | 2,5 | 646 | 96,7 | 22 | 3,3 | 660 | 98,8 | 8 | 1,2 |
| Misiones | 1095 | 98,7 | 14 | 1,3 | 1088 | 98,1 | 21 | 1,9 | 1088 | 98,1 | 21 | 1,9 |
| Neuquén | 585 | 99,5 | 3 | 0,5 | 581 | 98,8 | 7 | 1,2 | 584 | 99,3 | 4 | 0,7 |
| Río Negro | 651 | 98,2 | 12 | 1,8 | 649 | 97,9 | 14 | 2,1 | 657 | 99,1 | 6 | 0,9 |
| Salta | 860 | 98,9 | 10 | 1,1 | 856 | 98,4 | 14 | 1,6 | 847 | 97,4 | 23 | 2,6 |
| San Juan | 691 | 96,1 | 28 | 3,9 | 683 | 95,0 | 36 | 5,0 | 702 | 97,6 | 17 | 2,4 |
| San Luis | 948 | 98,9 | 11 | 1,1 | 939 | 97,9 | 20 | 2,1 | 955 | 99,6 | 4 | 0,4 |
| Santa Cruz | 724 | 98,5 | 11 | 1,5 | 727 | 98,9 | 8 | 1,1 | 730 | 99,3 | 5 | 0,7 |
| Santa Fe | 717 | 96,9 | 23 | 3,1 | 701 | 94,7 | 39 | 5,3 | 735 | 99,3 | 5 | 0,7 |
| S. del Estero | 746 | 99,1 | 7 | 0,9 | 736 | 97,7 | 17 | 2,3 | 722 | 95,9 | 31 | 4,1 |
| Tucumán | 982 | 97,3 | 27 | 2,7 | 968 | 95,9 | 41 | 4,1 | 981 | 97,2 | 28 | 2,8 |
| T. del Fuego | 431 | 98,2 | 8 | 1,8 | 430 | 97,9 | 9 | 2,1 | 435 | 99,1 | 4 | 0,9 |
| Country total | 20424 | 97,7 | 471 | 2,3 | 20267 | 97,0 | 628 | 3,0 | 20538 | 98,3 | 357 | 1,7 |

higher alarm level for health events and, consequently, to a higher consumption of healthcare services and a corresponding higher spending. On the opposite side, there are those households which cannot afford healthcare spending and must therefore prioritize other aspects of household spending.

Health insurance status (having or not having healthcare coverage) and gender (masculine) of the head of the household are variables which protect against healthcare spending, since negative coefficients imply that spending decreases by 61 percentage points when the head of the household is insured, and by 14 percentage points if the gender is masculine.

Discussion

As regards out-of-pocket payment for health related events, it may be concluded that situations of catastrophic spending on healthcare affect 2% of households in the country, whereas some provinces show a disadvantage; situations of impoverishment as a result of spending on healthcare exhibit a similar pattern. Previous studies reported that in 1997 catastrophic spending on healthcare was observed in 5.77% of household in the country¹⁴, whereas in 2004 this type of spending affected 3.6% of households¹⁵.

Compared to other countries, the spending of Argentine households on health-related events may be considered low, since some countries exhibit an incidence of catastrophic spending be-

Table 2. Tobit regression model for the censored variable healthcare spending as a percentage of total home expenditure. Year 2012. ENGH. INDEC.

| | Coefficient | IC 95% | |
|--|-------------|--------|--------|
| | | Inf. | Sup. |
| Number of members under 14 years of age | 3,54* | 0,64 | 6,44 |
| Number of members above 65 years of age | 26,28* | 19,87 | 32,69 |
| Education level of the head of the household | 12,40* | 11,1 | 13,69 |
| Decil of the household income | 9,28* | 7,56 | 11,00 |
| Health coverage of the head of the household | -61,09* | -69,52 | -52,65 |
| Gender of the head of the household | -14,18* | -21,28 | -7,08 |

* $p < 0,05$. N° of observations = 20895. 9889 observations censored at the left in $y \leq 0$. 3762 uncensored observations. 7244 observations censored at the right in $y \geq 100$.

tween 10% and 27% of households, estimated on the basis of a cut-off point of 40% of expenditure exclusive of food (¹⁶⁻¹⁸).

As to factors that determine household spending on healthcare, those having members below 14 years of age show the highest spending, and the same applies for those having members above 65 years.

There are important differences between households that are insured through their heads and those who are not insured in that way, since the first group may show up to a 61% reduction in their healthcare spending, which coincides with results reported by other studies. It is also necessary to emphasize the importance of coverage of medicines and mother-child health care plans¹⁹.

In this study, it was not possible to separate household spending on healthcare in its constituent elements. Despite this limitation, there is evidence that the highest fraction of household healthcare spending corresponds to medicines and medical assistance. Spending on medicines may be elastic, and may follow income level, whereas spending on medical assistance is higher for young children (which is justified by the fact that children at this stage of life require more medical assistance)²⁰.

These two characteristics suggest that families in the lowest deciles cannot afford medicines nor satisfy their children's healthcare needs; this implies that a solution is to give these families access to medicines, providing them free of charge

through the public subsector, and to offer them an integral assistance that covers the growth and development stages of their children, among other health protection measures aimed at specific population sectors²¹.

The education level of the head of the household has been noted in the literature as an important determiner of household healthcare spending, since parents with a higher education level have a greater probability of safeguarding their children's health²²; this would also imply that they are able to afford healthcare payments in case of serious health problems²³.

Besides the determiners noted in this study, the literature suggests the existence of a wide range of household characteristics that influences the probability of incurring healthcare spending: households with advanced-age members who are hospitalized or suffer chronic diseases or households with advanced-age heads²⁴; also, the use of private healthcare providers for hospitalization of household members²⁵. It has not been possible to include the private providers in this study²⁶. According to Fazaeli, recent developments in biomedical technology entail both an increase in life expectancy and in healthcare spending; this may also bring about new problems related to healthcare financing, both for governments and households^{27,28}.

Predictably, healthcare spending has a stronger impact on poorer households; this has led to the categorization of this spending as highly regressive⁶, when assessed in terms of percentage of the family income. Looking at them in absolute terms, this spending increases in the sectors with higher family incomes, who have availability of financial resources, whereas poorer households lack those resources.

Any health-related event that affects the financial capacity of a household so as to compromise its subsistence needs is labeled as catastrophic, which does not necessarily involve a high-cost healthcare service. Even relatively low healthcare spending may result financially catastrophic for poor households. This is the case of those households that use nearly all their available resources to pay for basic needs, which make them more vulnerable than more affluent households when the need arises to face even low spending in healthcare^{14,29}. This has led in Argentina, more than ten years ago, to strategies of strengthening through initiatives aimed at complying with the requirements of universal healthcare coverage.

Currently available evidence leads to hypothesizing that the low incidence of catastrophic

healthcare spending in this country might partly be the result of a long process of strengthening policies aimed at the more vulnerable population groups. One of these policies is the financing of the healthcare sector. World Bank data indicate that, during 2013, Argentina allotted 45 billion dollars to financing the healthcare system, which implies a per capita investment of 1074 dollars. Spending in healthcare constitutes a 32% of the total spending; the World Bank also informs that during 2013 the percentage of the GDP allotted to healthcare in Argentina was 7.3%, which suggests that Argentina assigns a substantial investment to reducing inequity in household healthcare expenditure³⁰.

There is also evidence of other policies that had a positive impact in reducing catastrophic spending. For instance, nationwide programs like “Programa Sumar” for the protection of mother-child healthcare, and the “Plan Remediar”³¹. Both programs were set into motion approximately ten years ago. In 2004, the national government set up the “Plan Nacer” whose aim was to improve equity of access to healthcare services, giving priority to pregnant women and children up to 5 years. Later, in 2013, the “Programa Sumar” broadened the target population, expanded the offer of healthcare services and consolidated a model of greater equity in access to healthcare. It should be pointed out that the Universal Child Allowance (AUH, by its Spanish initials) and the Universal Birth Allow-

ance (AUE, by its Spanish initials) seek to synergize the effects of the “Programa SUMAR” with a view to increasing the effective coverage and strengthening the accessibility for the most vulnerable sectors of the population³².

The “Programa Remediar”, created in 2002, with a nationwide coverage, aims at guaranteeing the provision of a basic range of essential medicines through first-aid kits and other supplies for primary healthcare centers; this seeks to strengthen the response capacity of primary healthcare assistance in all the provinces³³. Strengthening primary level care is a well-known strategy with a positive impact on the level of household healthcare spending, since this policy is financed and made available to the community by the public sector^{34,35}.

It should be pointed out that the results obtained may be sensible to the methodology and definitions used to formulate the indicators³⁶.

This study has used more conservative definitions of catastrophic spending than those used by other authors; this may lead to an underestimation of the proportion of households with catastrophic spending. Some authors uphold that, when a family spends 50% or more of their financial resources (excluding those assigned to food), it is likely that the family will fall into poverty. In these matters, there is still no agreement on the cut-off point to be used for the indicators of catastrophic household healthcare spending^{16,37}.

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