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HEALTH CARE FINANCING IN LATIN AMERICA AND THE CARIBBEAN  
USAID Contract #LAC-0632-C-00-5137-00

The Demand for Health Care in the Dominican Republic:  
Study Design

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- Study Design -

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1 - Subject of Study

This country study will analyze individuals' behavior toward available health services and the most important determinants of this behavior. It will generate information needed to simulate consumer responses to changes in health policies concerning the composition of services, institutional responsibility, prices and cost recovery schemes, with reference to the major goal of coverage expansion, with satisfactory quality, and at affordable cost.

The study defines health care demand as the amount of health care, at a given level of quality, that a person wishes to purchase given certain determinants: biological (being sick, pregnancy, etc.); demographic (age, sex); cultural (illness perception, knowledge of causes and solutions); socio-economic (income, occupation, affiliation with insurance systems); environmental (water, sanitation); accessibility (distance, transportation); and the supply of services (type, price, third party payment mechanisms). The multiple factors that influence a persons' behavior can be understood and explained only by their simultaneous observation of the studied population. For that reason, it is necessary to have a data base, generated through a

probabilistic household sample survey, to identify the variables of importance in determining household decision making on health care utilization, complemented by a survey of providers.

According to current research on health care demand (1), the following determinants must be emphasized:

- Prices of health care and household and individual income. Prices are of special interest to country authorities because they are a direct health policy instrument (at least for public sector prices). Since the unit of analysis is the individual, properly measured price effects on individual behavior allow one to simulate the effect, in turn, of just about any kind of pricing scheme, not only the increasing or lowering of prices. Consequently, it is necessary to obtain price information from the health care providers located in the place of residence of the surveyed population, and not only the prices of services paid by the consumer. Price variations, if any, when an individual has an insurance coverage or benefits from any other kind of third party payment mechanism must also be considered. Income is one of the most important conditioning factors of health care demand. Recent work (2) confirms that the level of income determines how responsive adults are to prices in their choices of whether or not to seek care, and what type of provider they select. Health insurance, whether social or private, and the individual's premium contributions to these third-party payment mechanisms

(social security, insurance companies, employer welfare funds) are also potentially important as they affect the price paid for health services.

- Travel and waiting times are variables that also play a role in prices because they can be viewed as part of the "full price" of health care services. Like prices, these variables can be directly influenced by policy-makers through their choices on location of facilities, their staffing and the health care procedures.

Because of practical measurement and estimation reasons, the analysis will be centered in health services utilization, that is the interaction of demand and supply (1), based on household survey results, the health providers inventory in sampling areas, and on information related to third-party payment or copayment mechanisms. The previously prepared household survey scope of work (3), includes survey and inventory content and characteristics, defined on the basis of analysis requirements, which in turn were established having in mind country health sector authorities' needs and USAID mission interpretation of them.

## 2. Background and current importance

This study is part of a broad analysis of economic aspects of the health sector that is taking place in the Dominican Republic, that also includes the study of macroeconomic budgeting and allocations of resources, a user fee study and the cost estimation of selected health services, directed to produce crucial information for supporting policy decisions about the

coverage expansion of health services and their full-cost financing.

Until now, public institutions produce the only available information on health services use, which has serious content and coverage restrictions. It gives a general quantitative idea of some services, but does not give information about the behavior toward health services of different population sub-groups, particularly those who do not use or use very little of the public services. However, useful information has been produced by the National Survey of Income and Expenditures of Dominican Republic families, which apparently has good data on health expenditures but only few variables on health care with several measurement problems. The limited sample survey size (approximately 1,400 individuals) allows only national estimations of income elasticity for demand.

An important need that it is expected to be filled by this study, is the services demand and supply interaction in the private sector, the potential market of those services and the people's willingness and ability to pay for them. The knowledge of maximum population coverage that could be reached with different kinds of private delivery and payment mechanisms will allow the health authorities to have a more realistic estimation of the public sector size, and to concentrate their efforts and resources on those population subgroups basically incapable of financing totally or partially the required health services. Consequently, it is of primary importance to study in stratified detail the country's capital, Sto. Domingo, where the country's modern economy sector and major portions of middle and high

income population subgroups are concentrated.

The study will contribute useful information for a policy dialogue about the development and financing of health services. It will illustrate the implications of different health care models, the present and potential coverage capabilities of various health subsectors, the feasibility of recovering a portion of health services cost through user fees and private insurance premiums and the effect on demand of user fees and third-party payment mechanisms.

Furthermore, the exceptional circumstance of having the household data exclusively designed and collected for the purposes of this analysis will be an important contribution to the knowledge of people's behavior determinants, better than that produced by other country analyses of demand which mostly relied on limited data collected by multipurpose surveys.

From the methodological point of view, the study will have in consideration the lessons learned from previous studies, that were summarized and analytically commented in the HCF/LAC review paper (1), and will estimate the use of models like GEV (Generalized Extreme Value Models), that allow the simulation of effects on demand of different supply of health care schemes, and that were used successfully in the Peru Health Sector Analysis by Stony Brook researchers. (2 and 4)

### 3 - Objectives

The country study has basically the same objectives of the household survey. What is new here is the very analytical and integrated approach having as reference frame the key questions

raised by local authorities and the USAID mission. The objectives are:

- Determine the patterns of health care demand of different population subgroups by health subsector (public, social security, private) and type of services; estimate the population coverage of different type of services.
- Estimate the private health expenditures (amount paid directly by individuals) of different population subgroups by health subsector and type of services. Estimate the income elasticity of demand of different population subgroups.
- Determine the most important conditioning factors of health services choice and payment. Identify, categorize and quantify individuals, environmental and supply factors.
- Simulate, with proper econometric models, the effect on demand of different supply of health care schemes.

#### 4 - Study Universe, Analysis Subgroups and Methodology

The study universe is the civilian non institutional population living in the Dominican Republic in 1987. Up to five analysis subuniverses (geographical strata) are being considered, three in Santo Domingo, defined according to socio-economic criteria, a fourth one formed by all other urban centers in the country, and the fifth composed of the rural areas. This approach is based on the household survey and inventory designs; however, by the date this document was written, USAID Dominican Republic had only confirmed its request to survey the Sto. Domingo components. The analysis will thus concentrate on

specific population subgroups within the capital area, established according to demographic and socioeconomic variables.

Because most basic data are going to be generated from a probabilistic sample of the study population, it is important to indicate that study estimates will be affected by sampling (standard) errors. Standard errors depend on frequency and variability of the dependent variables and on the sample size. The magnitude of the standard error has been generally controlled on the sample design in such a way that it is feasible to analyze, a) a dependent variable (d.v.) of any frequency, through a total sample of 3000 or more households (Sto. Domingo and the rest of the country), b) a d.v. observed in 3% of the population or more, in any individual stratum, c) a d.v. observed in at least 10% of the population, in any dichotomic division of any stratum; d) a d.v. observed in at least 20% of the population in any of four subdivisions of one stratum.

Furthermore, the unequal probabilities of selection at stratum level, should be controlled in the data processing stage. Such probability variation was necessary for having the proper sample size at stratum level, especially of those containing the highest socio-economic subgroups, since they have the smallest population proportions. Then, every selected individual and household must be weighed by the reciprocal of their selection probability (the same for all stratum elements and clusters) before any combination is done of two or more stratum results, in order to avoid biased estimations. At the same time, such weighting is not necessary for computing and analyzing a

particular stratum result.

## 5 - Activities and Organizations

The general study conceptualization, its basic content and its principal methodological parameters, had been defined partially in the household survey and inventory designs. For that reason, this study design repeats some portions of the household surveys' scope of work, but develops other more pertinent for the results analysis. The activities and time schedule presented below, start with the definition of detailed conceptual schemes, the questionnaire design and the data processing basis. These are important tasks related to the survey, but also closely linked with the scope of the analysis itself. Consequently, their cost should be distributed between the survey budget and the HCF/LAC study budget.

Next come the survey and provider inventory results evaluations, and their preparation for the final analysis; these activities must be done at the same time that the survey descriptive report is being elaborated. This phase includes several visits and a learning process of the characteristics of public, social security and private services, at different administration and operating levels, and the study of their financing mechanisms. It will require close interaction among national and international consultants for deciding the content, structure and scope of every section of the study report, the responsibilities involved in the preparation of first drafts, the necessary resources and the time schedule. The integration of different parts of the report will be done by one of the

international consultants (economist). Once the first integrated draft is ready, it will be distributed among the study participants and evaluated and adjusted. New adjustments will be done by the economist consultant and the final draft will be presented to the IRG project advisory committee for comment, and to the HCF/LAC project director. Once approved by Stony Brook, the report will be sent to the USAID Dominican Republic. The report will be produced in both spanish and english.

The work will be executed through the joint participation of international consultants and national experts, in such a way that the former will contribute their technical knowledge and international experience and the second will contribute their knowledge about the country, its health care system, and the local issues. International consultants will include a health planner and research design specialist who will also be the study director; a health economist trained in demand analysis of health services and health policy research; and an administrative coordinator, who will also have technical functions as research associate, as well as representing the executor agency IRG. The coordinator will be the administrative link among the individual participants and participating institutions.

The national participation will include one health services and one health economics specialist. It also will have an advisory committee for discussing study aspects at country level, composed of representatives of local institutions interested in the study results. For helping in local tasks, there will be a support team for secretarial and computing services. International consultants will also have an advisory committee

for discussing, adapting and implementing the econometric model, and advising the results interpretation; two professors of the Economics Department of SUNY at Stony Brook will be part of this committee.

Charts 1 and 2 present the time schedule and details on the level of effort and travel of the study.

#### 6 - Study Product

The final product of the study will be a report with the following contents:

- Background, justification and study objectives.
- Conceptual model.
- Analysis methodology.
- Results, including a summary of the country, the health sector, a descriptive presentation of demand and supply aspects of health care in the Dominican Republic, econometric analysis answering specific questions, analytical integration of results and the most important conclusions.
- Statistical tables generated by the study.
- Detailed methodological appendices.
- References cited inside the text.

The first full draft document will have between 80 and 100 pages, double space, of main text.

#### 7. Consultants Scope of Work

Luis C. Gomez. Responsible for the general study. His functions include organization and direction of study activities,

preparation of descriptive components about demand and supply of health services in the Dominican Republic, review and orientation of other study components, and preparation of the Spanish version.

Jack Fiedler. Responsible for the econometric analysis, the analytical integration of results, and the production and editing of the English version. Furthermore, he will participate in contents definition, questionnaire review and report design.

Econometric Consultants. Their responsibilities include technical assistance in the questionnaire content and design, the practical application of econometric models and the adaptation of computer programs. They will also review the draft report critically.

Data Processing Consultant. Will assist in the adaptation, testing and operation of computer programs required for analysis and results simulation.

Coordinator. A member of IRG's staff and responsible for administrative aspects of the study execution, which includes: administrative coordination with SUNY/Stony Brook and AID/Washington and USAID/Dominican Republic; travel coordination; and orientation of consultants on administrative issues. Will also be an important collaborator in the technical execution of the study, in report preparation and final editing.

National Consultants. Their general responsibility is to help in the better understanding and interpretation of country and health sector characteristics and problems. Their specific functions include active participation in meetings and activities organized during the international consultants' visits;

collaboration on data collection and data processing of study results; preparation of parts of the study report related to country description, health system organization, health services delivery systems and financing schemes; critical review of different drafts of the study report; presentation and explanation of the study report to national institutions and groups.

Chart 1

Level of effort and travel

Activities	International consultants (days/man)				National consultants (days/man)		
	Health	Economy	Econometrics	Data Proc.			
	Labor	Travel	Labor	Travel	Labor	Labor	Labor
Study conceptualization and questionnaire design	4		2		4		
Basis for data processing					2	5	
Local organization of study and report design	6	7	6	7			5
Study results and preparation of draft components	8		18		3		15
Review of first drafts					3		4
Integrated draft preparation			10				
Local review of integrated drafts	6	7	6	7			4
Second draft preparation			6				
Review and adjustments of second draft	2		2				4
Adjustments recommended by IRG and Project Directors			2				
Final review and editing of spanish translation	8						
<b>Totals</b>	<b>34</b>	<b>14</b>	<b>52</b>	<b>14</b>	<b>12</b>	<b>5</b>	<b>32</b>



## References

- 1) Russell, S.S., Zschock, D.K., (coed.), Health Care Financing in Latin America and the Caribbean: Research Review and Recommendations. HCF/LAC, Stony Brook, NY, April 1986.
- 2) Gertler P., Locay, L., Sanderson, W., Are User Fees Regressive? - The Welfare Implications of Health Care Financing Proposals in Peru, Stony Brook Working Papers, Department of Economics, Stony Brook, NY, October 1986.
- 3) Gomez, L.C., Encuesta de Hogares para el Estudio de la Demanda de Servicios de Salud en la Republica Dominicana, Alcance del Estudio, Financiamiento de la Atencion en Salud en Latinoamerica y el Caribe (HCF/LAC), International Resources Group Ltd., Setauket, NY, March 1987 (Working Draft).
- 4) Gertler, P., Locay, L., Sanderson, W., The Demand of Health Care in Peru: Lima and the Urban Sierra, 1984, A Health Sector Analysis of Peru Technical Report, Stony Brook, NY, July 1986.