



EquiLAC 

# Country Studies

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# EquiLAC

Phase I (2009-2010): health status and health care inequalities.

Phase II (2011): inequalities in financing, expenditures, and public subsidies.

Phase III (2012): inequalities in health outcomes (infant mortality, under five mortality, stunting, underweight, life expectancy, maternal mortality, mortality of diabetes mellitus, etc) and distribution of health services (physicians, nurses, hospitals, health centers, etc).

# Study Description

- Measurement and explanation of income-related health and health care inequalities.
- Based on the horizontal equity principle of equal care for equal need, irrespective of other characteristics such as income, sex, race, geographic region, etc.
- Use of a common methodology to facilitate cross-country comparisons of inequalities.
- Open to the use of other methods to complement the study.

# Research Questions

- Are there inequalities in health and health care utilization by income before and after standardizing for differences in the need for health care?
- What is the magnitude of income-related inequalities?
- How has the distribution of health or health care changed over time? Have income-related inequalities narrowed or widened over time?
- How do income-related inequalities compare among geographic regions, rural/urban populations, and/or different race/ethnic groups?
- What are the major factors that contribute to the inequalities identified?

# Methodology

- Uses concentration indices to assess inequalities and inequities in health care
- Compares the actual distribution of health care with the need-expected distribution.  $HI_{WV} = C_U - C_N$
- The concentration index of the distribution of actual use describes inequality
- The concentration index of the need-standardized use describes inequity
- Uses an equity norm, which is generally assumed to be the average relationship between need and healthcare utilization for the population as a whole.
- Aversion to inequality parameter = 2.

# Standardization of Healthcare Utilization

- Indirect-standardization Method
- Let healthcare use ( $y_i$ ) be explained by

$$y_i = \alpha + \beta \ln inc_i + \sum_j \beta_j x_{ji} + \sum_k \gamma_k z_{ki} + \varepsilon_i$$

- where  $\ln inc$  is log income,  $X_j$  are the need variables and  $Z_k$  are the non-need control variables.  $\alpha$ ,  $\beta$ , and  $\gamma_k$  are parameters and  $\varepsilon_i$  is the error term.
- Combining the coefficients from the estimation above with the actual values of the need variables, the need-expected utilization can be calculated:

$$\hat{y}_i^X = \hat{\alpha} + \hat{\beta} \overline{\ln inc}_i + \sum_j \hat{\beta}_j x_{ji} + \sum_k \hat{\gamma}_k \bar{z}_p$$

- where over score indicates mean values and  $\hat{\phantom{x}}$  indicates OLS coefficients

- Indirectly need-standardized utilization is:  $y_i^{IS} = y_i - \hat{y}_i^X + \bar{y}$

# Interpreting the Horizontal Inequity Index (Health Care)

- Need-standardized concentration index ( $CI^*$ ) is the measure of horizontal inequity (HI)
- If  $HI = CI^* > 0$  then inequity is pro-rich or for given need, use is concentrated among the rich
- If  $HI = CI^* < 0$  then inequity is pro-poor, or for given need, use is concentrated among the poor
- If  $HI = CI^* = 0$  then equity in healthcare utilization for given need
- Koolman & van Doorslaer (2004): multiply CI by 75 to obtain the percentage of the health variable that must be transferred from the richer to poorer half of population to arrive at an equal distribution with a CI of zero.

# Decomposition

- Decomposition analysis of the concentration index can be used to show the contribution of each variable to inequality and inequity.
- Concentration Index can also be calculated using decomposition.
- Very helpful to describe sources of inequalities to policy makers.

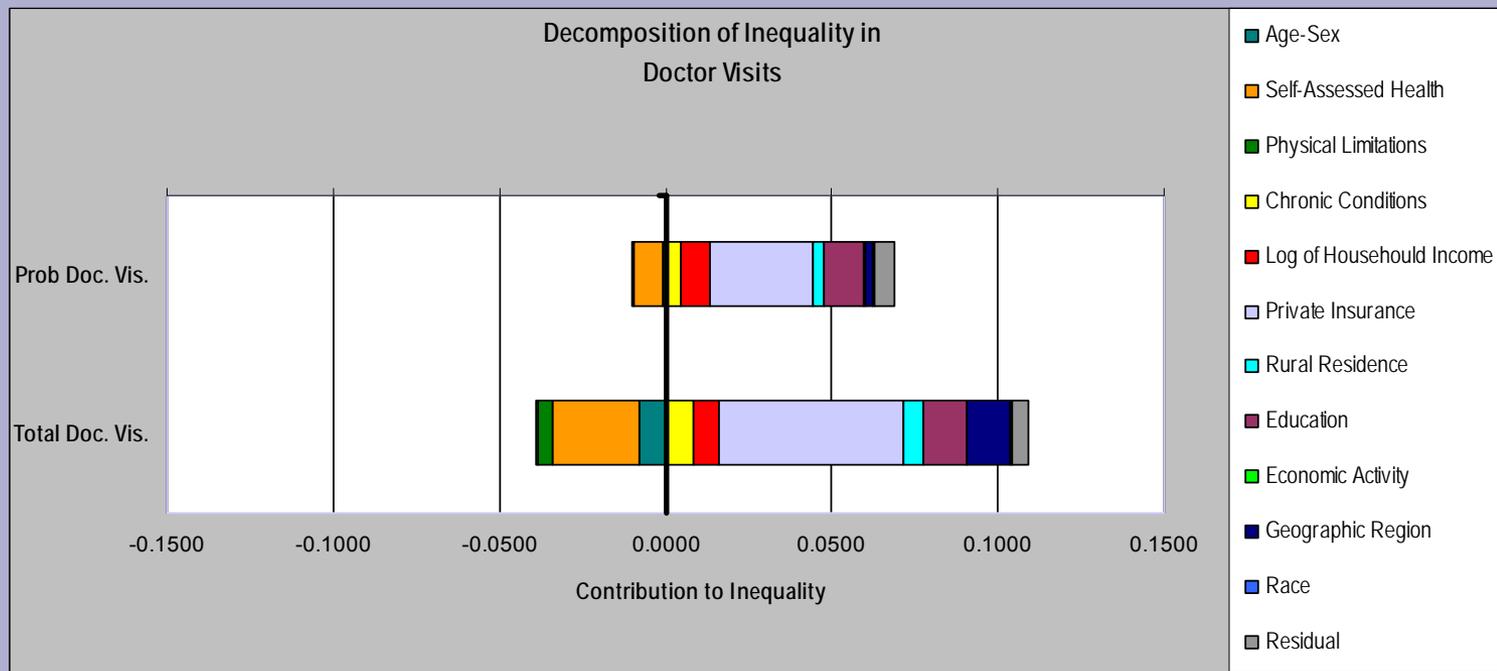
# Decomposition

## Decomposition of the Concentration Index for Health Care Utilization Variables

	Prob of Doctor Visits	Total Doctor Visits
Age-Sex	-0.0006	-0.0077
Self-Assessed Health	-0.0087	-0.0264
Physical Limitations	-0.0010	-0.0045
Chronic Conditions	0.0045	0.0082
Log of Household Income	0.0087	0.0079
Private Insurance	0.0314	0.0554
Rural Residence	0.0033	0.0063
Education	0.0119	0.0127
Economic Activity	0.0005	-0.0006
Geographic Region	0.0023	0.0131
Race	0.0001	0.0007
<b>Total Need Factors (a)</b>	<b>-0.0058</b>	<b>-0.0304</b>
<b>Total Non-Need Factors (b)</b>	<b>0.0582</b>	<b>0.0955</b>
<b>Residual (HI - b)</b>	<b>0.0062</b>	<b>0.0047</b>
<b>CI</b>	<b>0.0586</b>	<b>0.0698</b>
<b>HI Index (CI - a)</b>	<b>0.0644</b>	<b>0.1002</b>
<b>HI Index OLS</b>	<b>0.0644</b>	<b>0.1002</b>
<b>HI Index NegBin/Probit</b>	<b>0.0641</b>	<b>0.0990</b>

Source: Almeida, G. Measuring health and health care inequalities in health care: Evidence from Brazil.

# Decomposition



# Methodology - Advantages

- Reflect the socioeconomic dimension of health inequalities.
- Use information on all population groups.
- Sensitive to changes in the distribution and size of population across socioeconomic groups.

# Methodology - Disadvantages

- Requires measurement of need, which is a elusive concept with a variety of interpretations.
- More complicated to calculate and interpret than other available measures.
- Strictly requires ratio scale (living standard) variable that can be rank-ordered.

# Variables

DV: Healthcare utilization

Hospital care, physician visits,  
and dental visits

## Need Variables (Standardization)

- Age
- Sex
- Self-assessed health
- Physical/activity limitations
- Chronic conditions

## Non-need Variables

- Income, expenditure, consumption
- Health Insurance
- Rural Area
- Education
- Activity Status
- Geographic Region
- Race/Ethnicity

# Data Sources

<i>Country</i>	<i>Survey</i>	<i>Year</i>	<i>Households</i>	<i>Age Limits</i>
Brazil	Pesquisa Nacional por Amostra de Domicílios (PNAD)	1998	112,000	All ages
		2003	133,000	All ages
		2008	150,000	All ages
Canada	Canadian Community Health Survey (CCHS)	2002	65,000	All ages
		2007	65,000	All ages
Colombia	Encuesta de Calidad de Vida (ECV)	2003	24,090	Adults 18+
Chile	Encuesta Nacional de Calidad de Vida y Salud (CASEN)	2003	68,153	Ages 15+
		2006	73,720	Ages 15+
Ecuador	Encuesta de Condiciones de Vida (ECV)	1999	n/a	n/a
		2006	13,536	Ages 12+
Jamaica	Jamaica Survey of Living Conditions (SLC)	2002	n/a	n/a
		2007	1,994	n/a
Mexico	Encuesta Nacional de Salud y Nutrición (ENSANUT)	2006	48,600	All ages
Peru	Encuesta Nacional de Hogares Sobre Condiciones de Vida y Pobreza (ENAHO)	2003	20,084	Ages 12+
		2007	40,266	Ages 12+
United States	National Health Interview Survey (NHIS)	2002	68,026	Adults 18+
		2007	29,915	Adults 18+

# Available Indicators

	Brazil	Canada	Chile	Colombia	Ecuador	Jamaica	Mexico	Peru	USA
Household income	Y	Y	Y	Y	Y	Y	Y	Y	Y
Self-assessed health status	Y	Y	Y	Y	N	Y	Y	N	Y
Health/Physical limitations	Y	Y	Y	Y	N	Y	Y	N	Y
Chronic condition	Y	Y	Y	Y	Y	Y	Y	Y	Y
Activity status (employed, etc.)	Y	Y	Y	Y	Y	Y	Y	Y	Y
Generalist visits	N	Y	N	Y	N	Y	N	N	Y
Specialist visits	N	Y	Y	Y	N	N	Y	Y	Y
Any physician visits	Y	Y	Y	Y	Y	Y	Y	Y	Y
Total physician visits	Y	Y	N	N	N	Y	N	N	Y
Any hospitalization	Y	Y	Y	Y	Y	Y	Y	Y	Y
Total inpatient days	Y	Y	Y	Y	N	Y	Y	Y	Y
Any dentist visits	Y	Y	Y	Y	Y	Y	Y	Y	Y
Total dentist visits	N	Y	N	N	N	N	N	N	N
Private insurance	Y	Y	N	N	Y	N	Y	Y	Y
Education	Y	Y	Y	Y	Y	Y	Y	Y	Y
Race	Y	Y	Y	Y	Y	N	Y	Y	Y
Geographic region	Y	Y	Y	Y	Y	N	Y	Y	Y
Rural/urban	Y	Y	Y	Y	Y	N	Y	Y	Y

# Study Limitations

- Cross-sectional study: results are limited to a single point in time.
- Surveys not primarily designed to test equity in health and health care.
- Recall period of 12 months.
- Self-assessed health may differ from true health status because of variations between socioeconomic groups that may influence respondent's perceptions and understanding of their health problems.
- Methods can only provide information on differences in quantities of healthcare and not on quality or appropriateness of health care.
- Results should be interpreted as a single dimension of socioeconomic inequalities of the health care system.

# Sources of Information

- Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and Their Implementation. O'Donnell, O., van Doorslaer, E., Wagstaff A. and Lindelow, M. Washington DC, World Bank, 2008.
- ADePT-Health.
- Income-related inequalities in the use of medical care in 21 OECD countries. van Doorslaer, E., Masseria, C., & OECD Health Equity Research Group. OECD, 2004.
- Website/Sharepoint.
- Listserv.