

Chapter Six

The Social Security Health System and the Use of Its Services among Nicaraguans in Costa Rica

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The argument that immigrants tend to make greater use of health services, displacing the local population, is well-known. The goal of this study is to compare affiliation to the Costa Rican national health care system and the use of health services among Nicaraguans in Costa Rica and the Costa Rican population for the year 2004 and their evolution in recent years (1998–2004). The results of this study are based on the National Survey of Income and Expenses (Encuesta Nacional de Ingresos y Gastos ENIG-2004).

The gross number of those with insurance is 17 percent lower in Nicaraguan households. The ratio of net consultations (without taking into consideration noncontributing members) in Nicaraguan households is 17 percent greater than that of Costa Ricans. These differences remain the same when the place of residence is taken into consideration. Since 1998, the total number of those insured has risen five percentage points in Nicaraguan households and decreased five points for Costa Ricans. After making adjustments to take into account the effect of those not insured, a greater decrease can be perceived in the number of those insured in Costa Rican households since 1998. Since then, the ratio of net consultations has increased 43 percent in Nicaraguan households, in contrast to the 25 percent increase in Costa Rican households. These results suggest a possible lack of credibility in public institutions on the part of the Costa Rican population, while, in a parallel manner, it seems that the migrant population is investing more in public services, as it should be in contributive regimes. Beyond that, the study calls into question the arguments against migration and the xenophobic discourse against social minorities in Costa Rica which are nourished by the supposed burden placed on the public health system by Nicaraguan migrants.

Nicaraguan migration to Costa Rica has increased in the past two decades. Between 1984 and 2000, Nicaraguans in Costa Rica went from around 89,000 to a little over 296,000. This modified the relative weight of foreigners in the total population, which went from 3.7 percent to 7.8 percent in the last period. In the last population census, taken in 2000, they constituted 76 percent of all foreigners and went from 1.9 percent to 5.9 percent of the national total in this period (Vargas 2004).

Without a doubt, the issue of migration provokes diverse sentiments, both in the countries of origin and in the receptor countries. The larger the migration, the greater its impact on the sender and receptor countries; because of that, the more exacerbated the passions on both sides of the border are, the more difficult rational discussion is (Molina 2002). One of the main arguments against Nicaraguan migration to Costa Rica on the part of the local population is the idea that the Nicaraguan immigrant, in many cases of a lower social level and because of his/her “irregular” status, tends to utilize public services, specifically health services, more, saturating them and displacing the local population. In two studies carried out by González and Varela (2003a, 2003b), they affirm that, on the average, 75 percent of the Costa Rican population believes that Nicaraguan immigrants put the social security of the country at risk.

On the other hand, Article 25 of the Universal Declaration of Human Rights states that “every individual has the right to health, to medical assistance and the social services necessary to insure an adequate standard of living” (United Nations Organization 2006).

The objective of this study is to compare affiliation to the social security health system and the use of health services by Nicaraguans in Costa Rica to those of the Costa Rican population in 2004 and their evolution in recent years (1998–2004), taking into account other factors such as place of residence. The working hypothesis is that affiliation to the social security health system and the patterns for use of health services in Nicaraguan and Costa Rican households are still differentiated at present.

MATERIALS AND METHODS

The data in this study was taken from the National Survey of Household Income and Expenses (Encuesta Nacional de Ingresos y Gastos de los Hogares), Costa Rica 2004–2005, which from now on will be designated as ENIG-2004 (Instituto Nacional de Estadísticas y Censos [INEC], 2006). The sampling design for the survey provided a probabilistic sample which was stratified, two-staged and replicated. In the stratification, the urban and rural zones of the six strategic planning regions into which Costa Rica is organized were

used; in addition, the central urban area was stratified in six socioeconomic substrata, for a national total of seventeen strata. In the first stage, census segments were selected, and during the second stage, households were selected. Four thousand, five hundred households—the analytical unit utilized in the ENIG-2004—were interviewed. The survey included 16,000 people.

In defining what was understood as Nicaraguan, question four of the IX National Population and Housing Census 2000 (Censo Nacional de Población y Vivienda) (INEC 2000) was utilized, which asks about the place of residence of the mother upon the birth of the person being interviewed. A Nicaraguan, then, is a person whose mother resided in Nicaragua when that person was born. The ENIG-2004 included 850 Nicaraguans (5.4 percent of the total number of people). There were 350 people of other nationalities. A Nicaraguan household was defined as a home where the head of household was Nicaraguan. Costa Rican households were handled similarly. The ENIG-2004 included 300 Nicaraguan households (7 percent of the total number of households). There were 135 households where the head of household was of another nationality.

1. Gross rate of members of the household who are insured (y_1), defined as:

$$y_1 = \frac{\sum_{i=1}^h Tr_i}{\sum_{i=1}^h T_i}$$

where Tr is the number of members of household i with health insurance and T is the number of members in the household. The gross rate of affiliates (gra) ranges between 0 and 1. A person who is insured is one who is protected by the Social Security Health System (Caja Costarricense del Seguro Social, CCSS). The insurance is possible either because the person has a salary or through special agreement with an organization, voluntary affiliation, being State-insured, as a retiree, through special types of insurance, or simply as a relative of a person with insurance. According to the census, 70 percent of the people in Costa Rica are insured (INEC, 2000). Thus, for example, a gra of 0.75 means that 75 percent of the household members have health insurance.

2. Net rate of affiliates in the households (y_2), defined as:

$$y_2 = \frac{\sum_{i=1}^h Tc_i}{\sum_{i=1}^h T_i}$$

where T_c is the number of members in the household i who are older than twelve and who, besides being insured, are wage earners. The net rate of affiliates (nra) is generally less than the gra ; they are equal when all the members of the household are wage earners and are insured at the same time. The nra is undefined when there are no insured individuals in the household but there are members who are wage earners; in these cases, the nra is defined as zero. A wage earner is a person who receives remuneration regularly in the form of money, as a salary or as earnings. According to the census, 36 percent of those individuals older than twelve earn income and are insured (INEC, 2000). Thus, for example, an nra of 0.75 means that 75 percent of the members of the households are insured and are wage earners.

3. Net rate of consultations in the households (y_3), defined as:

$$y_3 = \frac{\sum_{i=1; c=1}^h T_i}{\sum_{i=1}^h Tc_i}$$

where T is the number of members from the household i who, in the past twelve months, attended medical consultations in public health institutions (EBAIS,² clinics or hospitals of the CCSS or the National Insurance Institute (Instituto Nacional de Seguros, INS). The net rate of consultations (nrc) is a positive number greater than zero; it is zero when no one from the household attended a medical consultation. A medical consultation is defined as the health care given by a qualified professional to a person who is not hospitalized and who is not in emergency services (Moya, 2000). It was not possible to obtain a measurement for nrc from the census because the last census did not include a set of questions referring to medical consultations in public health institutions, but on the basis of the Multi-Purpose Household Survey 2001, which did include a special health module, it is possible to estimate this figure at 2.06 (INEC, 2001). Thus, for example, an nrc of 2 means that two members of the household attended medical consultations in public health institutions in the last twelve months, for each wage earner.

4. Net rate of hospitalizations, defined as:

$$y_4 = \frac{\sum_{i=1; r=1}^h T_i}{\sum_{i=1}^h Tc_i}$$

where T is the number of members of the household i who, during the twelve months previous to the interview, were hospitalized in a public health institution (hospitals of the CCSS or the INS). The net rate of hospitalizations (nrh) is a positive number greater than zero and zero is when no one from the household was hospitalized. Hospitalization is defined as a person staying in a hospital for at least twenty-four hours (Moya, 2000). It was not possible to obtain a measurement for nrh from the census due to the fact that the last census did not include a set of questions referring to the hospitalization of individuals in public health institutions, but on the basis of the Multi-Purpose Household Survey 2001, which did include a special health module, it is possible to estimate this figure at 0.24 (INEC, 2001). Thus, for example, an nrh of 0.24 means that in the last twelve months, two members of every ten household members were hospitalized in public health institutions for each wage earner.

In order to calculate the nrc and the nrh , the source of information must have a special set of questions generally termed “health services module.” Neither the census nor the Multi-Purpose Household Survey (EHPM), which are carried out annually, incorporate this module, with the exception of the latter in the years 1993, 1998, and 2001, which were utilized to calculate the y -variables (INEC 1993, 1998, 2001).

Version 8 of the STATA program (Stata Corp 2005) was used to make the calculations.

Viability of the Estimations

Working with the group of Nicaraguan households implies working with subclasses. A subclass is defined as a sample subgroup with a specific characteristic, in this case, that of being a Nicaraguan household. Almost without exception, these subclasses are represented in most of the segments and all the strata; thus, these subclasses are called cross-classes because they “cross through segments and strata, rather than being concentrated in only some” (Silva 1993).

An exploratory analysis determined that in 60 percent of the segments from the ENIG-2004, there was at least one Nicaraguan household, without indicating how many households there are. What should the procedure be for estimating the y_i within a subclass? One very common error which is committed in the analysis of sample surveys is to ignore the survey’s design and assume that the sample was created by means of a simple random design (srd) and analyze the y_i variables of the subclass with the formulas for the srd . This is generally not a serious problem to the degree that the subclass is large enough to produce reliable estimates. In a worst possible

case, this does not happen. So how should one proceed in estimating the y_i within a subclass where its size is not large enough to produce reliable estimates? One simple answer is to say that, as a result of the probabilistic nature of the sample, as in the case of the ENIG-2004, those elements which belong to the subclass constitute a probabilistic sample of the subpopulation defined by the same restrictions which define said subclass. Both the structure and the properties of the design of the ENIG-2004 are “inherited” by these subsets (Silva 1993). In the most conservative case, and ignoring the previous point, it is necessary to evaluate the viability of the estimations from alternative sources. Naturally, ideally the viability of these estimations would be evaluated with the same y_i variables which will be analyzed in the study using alternative sources. Since this is not possible, because not all the existing surveys (or census) examine the use of health services, the viability of the estimations will be evaluated with auxiliary z_i variables in alternative sources.

In order to evaluate the viability of estimations in this study, the census and the Multi-Purpose Household Survey, Costa Rica 2004, EHPM-2004 (INEC 2004) were used as alternative sources. The census is the source which provides the population parameters for the subclass and which serves as the “golden test.” The EHPM-2004 is a survey carried out the same year as the ENIG-2004. The z_i auxiliary variables for the subclass which are present in all three sources were: sex ($z1$), age ($z2$), level of education (elementary or less, high school, and university) ($z3$), work status (working or not) ($z4$), and health insurance ($z5$). Evaluation of the viability of the estimations was effected at the national level and by residential area. The idea behind evaluation of the viability of the estimations is that if three sources of information coincide in the estimation of the z_i variable, it can reliably be said that any bias in the selection is minimal; thus, it is possible to use the design of the ENIG-2004 to estimate the y_i variable in the subclass. A “goodness of faith test” was employed to prove the coincidence of the z_i variable among the three sources. The null hypothesis is that the estimations in the three sources of the subclass are equal. The results are presented in table 6.1 (national) and table 6.2 (residential area).

RESULTS

General Aspects

Table 6.3 shows the estimations of the demographic variables of interest according to type of household. The gross rate of affiliates is significantly lower

in Nicaraguan households in comparison with Costa Rican households ([0.64, 0.73] versus [0.79, 0.83] respectively). The *gra* in Nicaraguan households is approximately 17 percent lower than that of Costa Rican households.

The net rate is also lower in Nicaraguan households ([0.21, 0.26] versus [0.29, 0.31]). The *nra* in Nicaraguan households is approximately 30 percent lower than the *nra* in Costa Rican households.

Table 6.3 shows that the net rate of consultations among Nicaraguan households is greater than that of Costa Rican households, although this difference is not significant (2.17 versus 1.85). The *nrc* in Nicaraguan

Table 6.1 Percentage of the Nicaraguan Population According to *zi* Demographic Variables on the Basis of Three Sources of Information

Demographic Variables <i>zi</i>	Census 2000	EHPM-2004	EniG-2004	$p > \chi^2(1)$
Sex				
Men	5.9	5.6	5.5	0.82
Women	5.9	5.6	5.5	0.80
Total	5.9	5.6	5.5	0.81
Age				
From 0 to 14	3.4	3.1	2.8	0.71
From 15 to 64	7.3	6.8	6.8	0.79
65 and Older	4.7	4.3	4.1	0.74
Total	5.9	5.6	5.5	0.81
Education				
Elementary or Less	6.4	7.1	6.3	0.78
High School	6.4	5.5	5.8	0.66
University	2.5	2.3	1.7	0.61
Total	5.9	6.0	5.7	0.91
Work status				
Working	8.4	7.8	7.4	0.68
Other	5.7	4.6	5.5	0.66
Total	6.9	6.2	6.5	0.77
Affiliation				
Yes	4.4	4.0	4.3	0.86
No	13.0	12.2	10.3	0.84
Total	5.9	5.6	5.5	0.81
Residence				
Urban	5.8	4.9	5.1	0.65
Rural	6.2	6.5	6.1	0.89
Total	5.9	5.6	5.5	0.81

Source: Calculated by author

Table 6.2. Percentage of the Nicaraguan Population According to Auxiliary Demographic Variables, According to Three Sources of Information, by Area of Residence.

Demographic Variables	zi	Census 2000		EHPM-2004		EniG-2004		p > $\chi^2(1)$	
		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Sex									
Men		5.5	6.5	4.7	6.80	4.9	6.5	0.66	0.91
Women		6.0	5.8	5.1	6.24	5.3	5.8	0.64	0.87
Total		5.8	6.2	4.9	6.52	5.1	6.1	0.65	0.89
Age									
From 0 to 14		3.1	3.7	2.2	4.02	2.5	3.2	0.53	0.76
From 15 to 64		7.1	7.7	6.1	7.97	6.3	7.7	0.62	0.92
65 and older		4.2	5.7	4.3	4.47	2.9	6.3	0.53	0.57
Total		5.8	6.2	4.9	6.52	5.1	6.1	0.65	0.89
Education									
Elementary or less		6.7	6.1	6.4	7.76	5.9	6.7	0.75	0.45
High school		6.7	5.5	5.3	5.86	5.9	5.4	0.53	0.87
University		2.5	2.1	2.1	2.98	1.5	2.9	0.48	0.39
Total		6.0	5.7	5.3	7.09	5.2	6.3	0.66	0.54
Work Status									
Working		8.3	8.7	7.0	8.99	7.0	8.1	0.55	0.81
Other		5.2	6.3	4.4	6.06	4.7	6.7	0.65	0.84
Total		6.6	7.3	5.8	7.48	5.9	7.4	0.66	0.93
Affiliation									
Yes		4.2	4.6	3.7	4.56	3.8	5.0	0.73	0.84
No		13.3	12.5	10.8	13.95	10.4	10.1	0.30	0.42
Total		5.8	6.2	4.9	6.52	5.1	6.1	0.65	0.89

Source: Calculated by author

households is approximately 17 percent greater than that of Costa Rican households. The net rate of hospitalizations is similar in the two types of household.

The rate in Nicaraguan households is 0.23, while in Costa Rican households it is 0.22.

These differences persist when an analysis is made taking residential area into account. Table 6.4 shows the estimations of the indicators for the use of health services according to type of household, residential area and their respective confidence intervals of 95 percent.

The gross rate of affiliates is always significantly lower in Nicaraguan households in comparison with Costa Rican households, both in urban areas and rural areas. In urban areas, the *gra* in Nicaraguan households is approxi-

Table 6.3. Estimators of the demographic *yi* variables of interest by type of household. Costa Rica 2004.

Demographic Variables	Estimator	Margin of Error	C.I. 95%	
Gross Rate of Affiliates				
Costa Rican households	0.81	0.01	0.79	0.83
Nicaraguan households	0.69	0.02	0.64	0.73
Net Rate of Affiliates				
Costa Rican households	0.30	0.01	0.29	0.31
Nicaraguan households	0.24	0.01	0.21	0.26
Net Rate of Consultations				
Costa Rican households	1.85	0.04	1.77	1.94
Nicaraguan households	2.17	0.15	1.88	2.46
Net Rate of Hospitalizations				
Costa Rican households	0.22	0.01	0.20	0.24
Nicaraguan households	0.23	0.04	0.15	0.30

Total households: Costa Rican: 3,800. Nicaraguan: 296.

Source: Calculated by author.

mately 21 percent lower than that of Costa Rican households, and 13 percent lower in rural areas. The same occurs with the net rate: the *nra* in Nicaraguan households in urban areas is approximately 23 percent lower than that of Costa Rican households and 29 percent lower in rural areas.

Both in urban environments and in rural, the net rate of consultations among Nicaraguan households is greater than that of Cost Ricans, although these differences are not significant. The *nrc* in Nicaraguan households is approximately 17 percent greater than that of Costa Rican households in urban areas and 12 percent greater in rural areas. The net rate of hospitalizations is similar in the two types of households, in urban and rural areas (Nicaraguan households = 0.19 and 0.27 respectively; Costa Rican households = 0.21 and 0.24, correspondingly).

Evolution in the Use of Health Services (1998–2004)

Table 6.5 shows the estimations for the demographic variables of interest according to type of household. Since 1998, the *gra* has increased almost five percentage points for Nicaraguan households; ironically, during the same period, the rate has decreased to the same degree in Costa Rican households. After making adjustments for the effect of the number of wage earners (net rate of affiliates), a decrease can be seen in both types of household, although it is more marked in Costa Rican households.

Table 6.4. Estimators of the y_i Demographic Variables of Interest by Type of Household and Area of Residence. Costa Rica 2004

Demographic Variables	Estimator	Margin of Error	C.I. 95%	
Gross rate of affiliates				
Urban				
Costa Rican households	0.82	0.01	0.80	0.85
Nicaraguan households	0.68	0.03	0.62	0.73
Rural				
Costa Rican households	0.79	0.01	0.7	0.81
Nicaraguan households	0.70	0.03	0.64	0.76
Net rate of affiliates				
Urban				
Costa Rican households	0.32	0.01	0.30	0.34
Nicaraguan households	0.26	0.02	0.22	0.30
Rural				
Costa Rican households	0.27	0.01	0.25	0.28
Nicaraguan households	0.21	0.02	0.18	0.24
Net rate of consultations				
Urban				
Costa Rican households	1.68	0.05	1.58	1.78
Nicaraguan households	1.96	0.20	1.57	2.36
Rural				
Costa Rican households	2.18	0.07	2.05	2.31
Nicaraguan households	2.45	0.20	2.05	2.85
Net rate of hospitalizations				
Urban				
Costa Rican households	0.21	0.01	0.19	0.24
Nicaraguan households	0.19	0.04	0.11	0.26
Rural				
Costa Rican households	0.24	0.01	0.22	0.27
Nicaraguan households	0.27	0.07	0.14	0.41

Total number of households: Costa Rican: 3800, Nicaraguan: 296.

Source: Calculated by author

The net rate of consultations (*nrc*) has increased since 1998 (see table 6.5). The increase is greater in Nicaraguan households, where it is almost 43 percent, compared to that of Costa Rican households, which is 25 percent.

The net rate of hospitalizations (*nrh*) has evolved more rapidly in Nicaraguan households than in Costa Rican households (see table 6.5). However, these results are not conclusive because of the small number of people who

Table 6.5. Estimators of the γ_i Demographic Variables of Interest by Type of Household. Costa Rica, 1993, 1998, 2001, and 2004.

Demographic Variables	1993 ¹ Estimator	1998 Estimator	2001 Estimator	2004 Estimator
Gross rate of affiliates				
Costa Rican households	0.85	0.85	0.83	0.81
Nicaraguan households	0.09	0.65	0.64	0.69
Net rate of affiliates				
Costa Rican households	0.30	0.32	0.32	0.30
Nicaraguan households	0.05	0.25	0.24	0.24
Net rate of consultations				
Costa Rican households	1.32	1.48	1.37	1.85
Nicaraguan households	0.85	1.51	1.47	2.17
Net rate of hospitalizations				
Costa Rican households	1.94	0.10	0.09	0.22
Nicaraguan households	7.39	0.08	0.15	0.23

¹. Insufficient data

Source: Calculated by author.

reported having been hospitalized in public health institutions, like the hospitals of the CCSS and the INS.

Discussion

This study quantifies affiliation to the social security health care system and use of its services among Nicaraguans in Costa Rica, as well as the evolution of the same in recent years. The comparison between the populations revealed substantial differences in aspects such as affiliation to the social security health system (gross and net rates), where there are fewer immigrants and greater incidence of use of health services (consultations) on the part of said population (17 percent greater), taking into account the effect of the household members who are not wage earners. These tendencies persist when the residential area, that is, urban and rural, is taken into account as well.

On the other hand, since 1998 there has been an increase in the number of Nicaraguans who are insured, directly or indirectly, and a decrease in the number of Costa Ricans who are insured (five percentage points). The effect is almost neutralized, in the case of the Nicaraguans, upon controlling the effect of those non-wage earners, but not in the Costa Rican population.

The evidence seems to suggest that Nicaraguan households are taking better advantage of public services, as should be the case in a contributive

system. The historical decrease in the use of health services on the part of the local population could be interpreted as a decrease in the credibility of public institutions, specifically those related to health.

These results give pause for reflection concerning the investment of the Nicaraguan population in public services. Apparently, Nicaraguan households are investing more in those services, which calls into question both the arguments against migration and racist discourse.

However, qualitative differences do not necessarily translate into quantitative terms. In that respect, Mojica (2004) states that access to the health system offers no particular disadvantage for Nicaraguan households in quantitative terms, although there could be qualitative differences in the quality of the medical care which are motivated by the condition of those who are not (directly) insured, which is a higher percentage for Nicaraguans than for Costa Ricans.

To what point are these results valid and reliable? One element which could detract validity from the results obtained is that the bias of over-registration is more frequent in the immigrant population. This means that it may have been more difficult to carry out the ENIG-2004 in neighborhoods with a greater population of Nicaraguans, for two main reasons. First of all, the undocumented status of some immigrant households may dissuade household members from being interviewed for an extended period (the twelve months that it took to carry out the ENIG-2004). Secondly, the greater mobility of some immigrant families might have an effect on the selection.

It is difficult to quantify the under-registration of Nicaraguan households in the ENIG-2004, which could constitute an issue to examine in future research.

This study presents important analytical information for the formulation of hypotheses for future studies and presents useful evidence for the study of social minorities in terms of public policies.

NOTES

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2. Equipo Básico de Atención Integral de la Salud [Primary Care Health Teams], which are in charge of a sector of the population comprised of approximately 1,100 households.

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