

Economic Well Being in Nicaragua:  
A Food Share Analysis  
2001 & 2005

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Abstract

The Living Standard Measurement Survey is a study prepared by World Bank in some of the Less Development Countries; the goal of the study is to determine levels of consumption, expenditures, and to measure poverty and general living standards. The purpose of this paper is to use the LSMS of Nicaragua during 2001 and 2005 to carry out a food share analysis.

## **Introduction**

Nicaragua is the largest country in Central America with a population of 5,891,199<sup>1</sup>, although it is the second poorest country in Latin America. The country was in civil war for several decades, but the present government has imposed some reforms trying to close the income gap and improve welfare.

The World Bank prepares the Living Standard Measurement Study (LSMS) in order to determine levels of consumption, expenditures, and to measure poverty in some of the less development countries included Nicaragua. This paper uses the LSMS of 2001 and 2005 to make some poverty and food share analysis. The food share analysis is a measure of welfare on the population, and it is intended to measure the fraction of the total expenditure of a family that food represents.

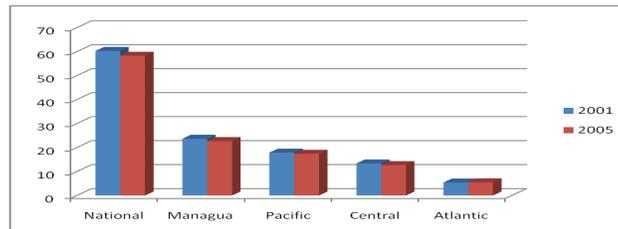
The paper includes graphs of the distribution of the households in urban and rural areas, the Lorenz curve, the main products consumed, the distribution of the consumption per category, the poverty distribution of the population, and finally the food share distribution.

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<sup>1</sup> <http://en.wikipedia.org/wiki/Nicaragua>, consulted on July 27 of 2009

## Data Analysis

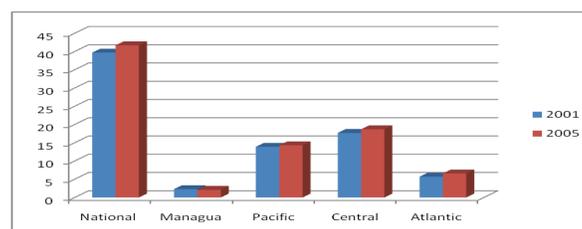
**Graph 1**  
**Distribution of Households, Urban Region**  
**Percentage 2001-2005**



Source: Table 1

Approximately the 60% of the Nicaraguan population live in urban regions. Managua has more than 20% of its population living in urban areas, while the Atlantic area has less than 5% of its population living in urban areas. There is not a big difference in the distribution between 2001 and 2005; all the regions have a slight decrease in the urban areas population except for the Atlantic region that has an increase of 1%. The urban population has more access to services such as drinking water, better infrastructure (bridges, roads, hospitals), consequently the living conditions in this area is superior than in the rural area.

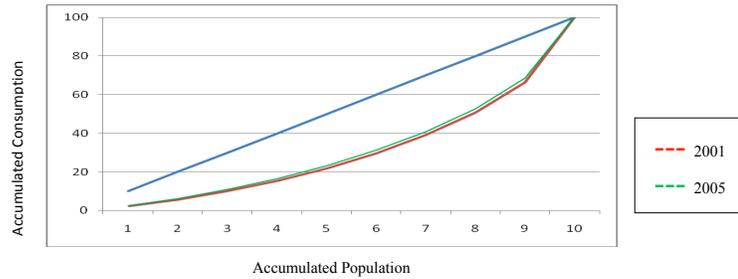
**Graph 2**  
**Distribution of Households, Rural Region**  
**Percentage 2001-2005**



Source: Table 1

The concentration of the Nicaraguan population living in rural areas represents around 40%. The central region has the highest percentage (around 18%) of people living in the rural areas while Managua has less than 5%. This part of the population is more likely to be in poverty and has limited access of public services.

**Graph 3  
Lorenz Curve 2001-2005**

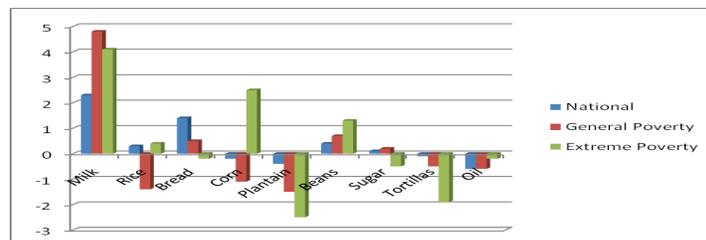


Source: Table 3

The Lorenz curve is one of the most used tools for examining the distribution of consumption; it relates the cumulative fraction of the population, starting from the poorest to the richest, against the cumulative consumption. The blue line in the graph represents perfect equality, and the red and green lines represent the year 2001 and 2005 respectively. Nicaragua is far from having an equal distribution; half of the population has 30% less consumption than the top 20% of the rich population. This means that 50% of the poorest is responsible of around 20% of total consumption, while the richest 20% accounts for 50% of the consumption, the remaining 30%, represented by the deciles 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> corresponds to the consumption of the middle class.

The data shows a slight difference between the Lorenz curves of the years in study, but this difference is appreciable from the deciles 5<sup>th</sup> until the 9<sup>th</sup>, this means that the poorest 50% and the richest 20% of the population are in the same situation from 2001 to 2005, therefore the difference in consumption is due changes in the middle class.

**Graph 4  
Main products consumed at national, general poverty and extreme poverty level  
Percentage Change 2001-2005**



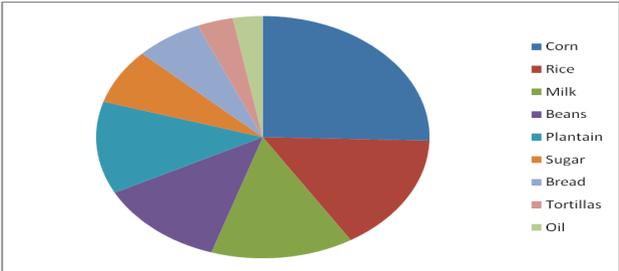
Source: Table 4

The top 10 products consumed for the population in Nicaragua are: rice, milk, bread, corn, plantain, beans, sugar, tortillas and oil. Nicaraguan families have different methods for the

acquisition of food; it can be either bought, supplied by an employer or it can be grown in family farms.

The consumption of milk, beans and bread are the only products that reflect a positive percentage change from 2001 to 2005, this means that the consumption of these products have increased. The rest of the products show a decrease in the rate of consumption. Milk is the product with larger increased in consumption, and the increase in is mainly due to the population in general poverty. Rice consumption has an increase in the national and extreme poverty level, while its consumption in general poverty reduced. Corn has an interesting behavior, at national and general poverty level the consumption decreased, but its consumption by the poorest increased by more than 2%. Plantain, tortillas and oil consumption have decreased to year to year, with largest decrease occurring in the extreme poverty population.

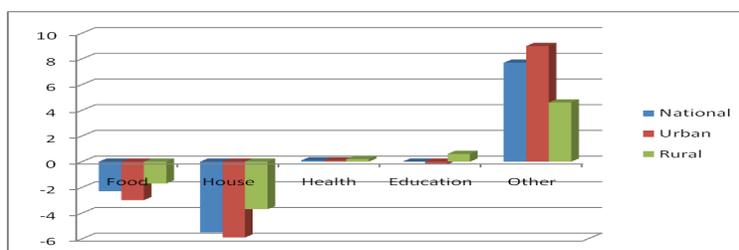
**Graph 5**  
**Main products consumed**  
**Extreme poverty 2005**



Source: Table 4

In 2005 the main product consumed by families in extremely poverty was corn, and when rice and milk are added we get more than 50% of the total food consumption. These 4 products are major source of carbohydrates but not a good source of protein and vitamins. This can lead to malnourished children, which could result in low grades at school and an increased in the dropout rate in education. Although, this effect can be reduced by the fact that public schools provide lunch or refreshments to students.

**Graph 5  
Distribution of the Consumption  
Percentage Change, 2001-2005**



Source: Table 5 & 6

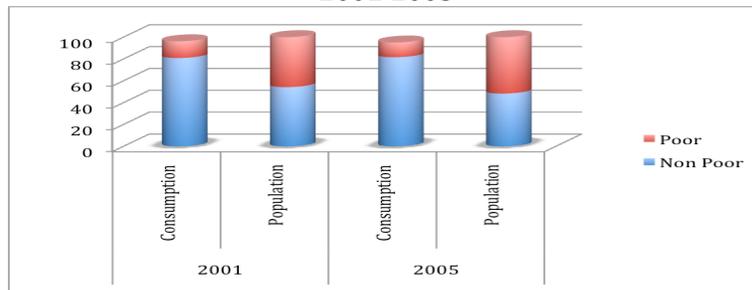
The distribution of the consumption in Nicaragua is segregated in 5 main groups, food, house, health, education and others. The category food includes all the items consumed by household members; it could be obtained as a purchase in the supermarket, as part of a payment for a job, as a donation, as a gift or from family farms. This group has experienced a percentage reduction of 2% from 2001 to 2005. So, families are spending less of their total expenditure in the purchase of food.

Housing constitutes the expenses on rent and payment of a mortgage; this sector has the largest percentage change between the years of study, it represents around 4% to 6% of the total expenditure. This can be explained by the presence of a new government since 2001, which has been trying to improve the conditions of the population for example, by building houses for poor families.

The category of health consists of the all the expenses of the household members on health care and insurances. Education consists of enrollment and tuition expenses as well as the purchase of uniforms and books. There has been a little change in the national consumption of health from 2001 to 2005. The category others includes transportation cost (buses and taxis), purchases of personal items, and other miscellaneous items.

The consumption patterns change from the rural and urban areas. The rural areas spend a greater portion of their expenditure in the purchase of food. In 2005 it represented 60% while housing, health, education and others accounted for the remaining 40%. Managua has a greater urban population because it is the largest city and the capital of the country, therefore its food consumptions expenditure is lower that the other areas.

**Graph 7  
Consumption Distribution  
2001-2005**

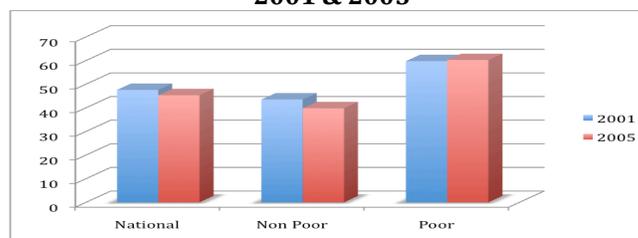


Source: Table 9

The consumption distribution is the key to determine the economic conditions of the population. In 2001 the non-poor represented 54% of the population but consumed 81%; in 2005 the relation was similar where non-poor accounting 52% of the population consumed 82%. On the other hand, in 2001 poor population in Nicaragua consumed 15% but represented 46% of the total population, while in 2005 poor people consumed 13% and corresponded to 48% of the total population.

This data reveals that from 2001-2005 the non-poor population increased 2% and the total consumption decreased 2%. The share of the expenditure allocated to the purchase of food is inversely related with the level of total expenditure, so the poorer the household is the greater the portion of the spending in food.

**Graph 8  
Food Share Distribution  
2001 & 2005**



Source: Table 10

The food share distribution shows that at national level the population uses more than 45% of their total expenditure on food. There is a slight reduction from 2001 to 2005 of 2%. The non-poor fraction of the population utilizes 43% and 40% in 2001 and 2005, respectively in the

consumption of food of their total expenses, and the poor segment of the population consumes 60% of their expenditure is food.

## **Conclusion**

Nicaragua's living standards are low, more than 40% of the population lives in some kind of poverty. This paper presents how the poorer 50% of the population consumes 20% of the total consumption while the richer 20% consumes 50%. These results reveal the inequality in the distribution of income.

Comparisons were made between the rural and the urban areas and the poverty conditions are worse in the rural area. The consumption of the 10 main products shows that corn, rice, milk, and beans are the principal food products consumed in the country, and therefore it can be concluded that the diet is not very balanced and this generates malnourishment especially in children.

The consumption distribution demonstrates that the Nicaraguan population in 2005 consumes at national level 45.3% of their income in food, 14.2% in housing, 6.3% in health, 5.5% in education and 28.7% in others areas such as services, transportation, and items of personal use. The most surprising value is the portion of the expenditure used to buy food. Although there was a decrease in the percentage change between 2001 and 2005 of 2%, almost half of consumption is still on food

The food share analysis shows that the in 2005 the population consumed 2% less on food than in 2001. The change was due to the non poor fraction of the population showing an decrease of nearly 4% even though the poor spent almost a half of a percent more on food. This resulted in a net decreased in the expenditure of food.

## Tables

**Table 1**

**Distribution of Households per Region  
Percentage 2001**

	Total	Urban	Rural
National	100	60.3	39.7
Managua	26	23.7	2.3
Pacific	31.9	17.9	13.9
Central	31.1	13.4	17.7
Atlantic	11.1	5.4	5.7

Source: Living Standards Measurement Survey 2001 and 2005

**Table 2**

**Distribution of Households per Region  
Percentage 2005**

	Total	Urban	Rural
National	100	58.3	41.7
Managua	24.8	22.7	2.1
Pacific	31.7	17.4	14.3
Central	31.4	12.7	18.7
Atlantic	12.1	5.5	6.6

Source: Living Standards Measurement Survey 2001 and 2005

**Table 3**  
**Distribution of consumption per deciles and percentage change**  
**2001 and 2005**

Deciles	2001	2005	% Change
1	2.2	2.5	0.4
2	3.4	3.7	0.3
3	4.4	4.7	0.2
4	5.4	5.6	0.2
5	6.5	6.7	0.2
6	7.7	8.0	0.3
7	9.4	9.6	0.3
8	11.7	12.0	0.3
9	15.6	15.8	0.2
10	33.7	31.4	-2.3

Source: Living Standards Measurement Survey 2001 and 2005

**Table 4**  
**Main products consumed at national level, general and extreme poverty and Percentage Change**  
**2001-2005**

	National			General Poverty			Extreme Poverty		
	2001	2005	%	2001	2005	%	2001	2005	%
Milk	12.1	14.4	2.3	10.3	15.1	4.8	7.4	11.5	4.1
Rice	11.5	11.8	0.3	13.9	12.5	-1.4	12.6	13	0.4
Bread	10.4	11.8	1.4	8.2	8.7	0.5	5.6	5.4	-0.2
Corn	8.5	8.3	-0.2	15	13.9	-1.1	18.6	21.1	2.5
Plantain	7.7	7.3	-0.4	9.8	8.3	-1.5	12.7	10.2	-2.5
Beans	5.8	6.2	0.4	7.4	8.1	0.7	9	10.3	1.3
Sugar	5.7	5.8	0.1	5.8	6	0.2	6.6	6.1	-0.5
Tortillas	5.5	5.4	-0.1	4.6	4.1	-0.5	4.8	2.9	-1.9
Oil	3.2	2.6	-0.6	3.1	2.5	-0.6	2.6	2.4	-0.2

Source: Living Standards Measurement Survey 2001 and 2005

**Table 5**  
**Distribution of the Consumption**  
**Percentage 2001**

	Food	House	Health	Education	Other
National	47.6	19.7	6.2	5.5	21
Urban	43.8	21.9	5.9	6.2	22.2
Rural	58.1	13.6	7	3.7	17.6

Source: Living Standards Measurement Survey 2001 and 2005

**Table 6**  
**Distribution of the Consumption**  
**Percentage 2005**

	Food	House	Health	Education	Other
National	45.3	14.2	6.3	5.5	28.7
Urban	40.8	16	6	6	31.2
Rural	56.4	9.9	7.2	4.3	22.2

Source: Living Standards Measurement Survey 2001 and 2005

**Table 7**  
**Poverty Distribution**  
**2001**

	Non poor	Poor	Non Extreme Poor	Extreme Poor
Managua	80	20	18	3
Pacific-Urban	63	37	31	6
Pacific-Rural	43	57	41	16
Central-Urban	62	38	27	11
Central-Rural	25	75	37	38
Atlantic-Urban	57	43	30	13
Atlantic-Rural	23	77	50	27

Source: Living Standards Measurement Survey 2001 and 200

**Table 8**  
**Poverty Distribution**  
**2005**

	Non poor	Poor	Non Extreme Poor	Extreme Poor
Managua	79	21	18	4
Pacific-Urban	62	38	31	6
Pacific-Rural	39	62	41	21
Central-Urban	61	39	27	13
Central-Rural	23	77	40	37
Atlantic-Urban	62	38	28	10
Atlantic-Rural	23	77	42	34

Source: Living Standards Measurement Survey 2001 and 2005

**Table 9**  
**Consumption Distribution**  
**2001 - 2005**

	Non Poor	Population	Poor	Population
2001	80.9	54.2	15.3	45.8
2005	81.6	51.7	13.5	48.3
%	0.7	-2.5	-1.8	2.5

Source: Living Standards Measurement Survey 2001 and 2005

**Table 10**  
**Food Share Distribution**  
**2001- 2005**

	National	Non Poor	Poor
2001	47.58	43.51	59.75
2005	45.30	39.80	60.20
%	-2.28	-3.71	0.45

Source: Living Standards Measurement Survey 2001 and 2005

## References

Bishop, J; Formby, J; Zheng B. **Regional Income Inequality and Welfare in China: A Dominance Analysis**, Asian Economic Journal, Journal of the East Asian Economic Association, Vol.10, No 3, 1996.

Deaton, Angus. **The Analysis of Household Surveys: A Microeconomic Approach to Development Policy**, The John Hopkins University Press, Baltimore and London, World Bank, 1997.

[http://books.google.com/books?id=5Lp\\_p6bLD2IC&printsec=frontcover&dq=food+hare+analysis#PPP8,M1](http://books.google.com/books?id=5Lp_p6bLD2IC&printsec=frontcover&dq=food+hare+analysis#PPP8,M1)