

# Components of the Income Aggregate: “Encuesta de Niveles de Vida, Nicaragua 1998”<sup>1</sup>

*Prepared for the Rural Income Generating Activities (RIGA) Project<sup>2</sup>*

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*This document provides the survey-specific details associated with the income aggregate construction. For more information about the RIGA project, please refer to <http://www.fao.org/es/esa/riga>. For additional detail regarding the overall RIGA income aggregate construction approach, please refer to Carletto, et al (2007), “Rural Income Generating Activities Study: Methodological note on the construction of income aggregates,” found on the RIGA website.*

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The Nicaragua *Encuesta Nacional de Hogares Sobre Medición de Niveles de Vida* (National Household Survey for the Measurement of Living Standards; EMNV) was carried out over a period of five months in 1998. Household surveys took place from April 15 until August 31, 1998.

The sample for the EMNV was drawn using a two-stage stratified sampling procedure using the census segments from the Seventh National Population Census and Third National Housing Census (1995) as the Primary Sampling Units (PSUs). The Secondary Sampling Units (SSUs) are two, urban and rural, by which the census segments were divided. From urban clusters, 12 dwelling units were selected, while from each rural cluster, 10 were selected. The sampling units used were the (1) dwelling unit; (2) household and (3) person.

4,650 households from 425 PSUs were selected with the objective of obtaining a sample of 4,370 households. The final sample however contained 4,209 households with complete surveys, indicating a total non-response rate of 15.7%. There are 1,963 rural households and 2,273 urban households in the dataset. In the original datasets, I05 is the variable distinguishing urban from rural households. Rural is defined as all areas fewer than 1,000 inhabitants and/or those areas with dispersed dwellings and the absence of infrastructure that offers the population basic

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<sup>1</sup> The information provided in this document relies substantially upon the Data User’s Manual (*Manual de Usuario de la Base de Datos*), provided with the 2001 Nicaragua EMNV data. It should be noted that such document was prepared prior to the elaboration of the survey.

<sup>2</sup> The RIGA Project is a collaboration between FAO, the World Bank and American University in Washington, D.C. Original data can be obtained from the World Bank’s Living Standards Measurement Study by visiting the LSMS website at: <http://www.worldbank.org/lsms>.

services such as electricity or potable water. In the calculation of the income aggregate, I05 is renamed to URBAN in order to use the same variable name across different surveys.

The various household-level modules of the EMNV survey can be linked the unique household identifier: I00. Since the sample is not self-weighting, population weights for individuals and households were calculated based upon the probability of selection; the household weighting factor variable is PESO2. All returns to income are reported in the local currency, Córdobas. In 1998, the official exchange rate was 10.58 NIO = 1.0 USD.<sup>3</sup> **The income aggregates are calculated at the household level and all aggregates are annualized.**

Regarding income from different sources, revenues and costs were disaggregated when such information was available. The disaggregated sources for each income component are summarized in output variables column of Table 1. The net variables and the data files included in the final total income aggregate (Income.dta) are in **bold**. **All variables included in the aggregate income variable are net of costs, unless otherwise noted.**

## Comments

- The original data codes responses such as “don’t know,” “ignored,” “not sure”, and so on, with a “99”, “999”, “9999” etc. These values are recoded to missing “.” in all files.
- Household weights were assigned using the expansion factor “peso2”. All income estimates are weighted using this factor.
- In all sections, the raw data undergoes a transformation (it is annualized, aggregated, taken from person – household level, etc) before a check for outlier values takes place.
- Annualization of income and expenditures is performed assuming those revenues and costs are earned or incurred on a regular basis when the reference period is shorter than the previous 12 months.
- In the Crop Production section, the reference period is the previous 12 months. Two total crop income variables are created: *cropincome1* and *cropincome2*. *Cropincome1* includes estimates of own crop consumption based on the agricultural production module of the household questionnaire. *Cropincome2* includes estimates of own crop consumption based on the two-week Food Booklet completed by each household surveyed.
- For the Livestock, and Rentagric sections, the reference period is the previous 12 months.
- Rentagric calculates gross income from the rental of agricultural land and net income from sharecropped land.
- Other Income includes income from nonfarm rental assets, from regular monthly education scholarships, and interests on financial deposits, savings, and loans given out. The reference period is the previous month for the education scholarships and the previous twelve months for all other sources.
- Transfer income is reported for the previous month for pensions and private transfers; therefore, the annualization of these income sources is performed by multiplying by 12. Transfers in the concept of regular education scholarships are reported for the previous month. The annualization of this income source is based on the number of school year months as reported in the Nicaragua Poverty Assessment, Annex 3 (8.5 months). Annual transfers are also reported for unemployment pensions and donations. Both gross and net

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<sup>3</sup> World Development Indicators.

income estimates are calculated. The income aggregate, however, considers only the gross transfers estimate.

- In the Wage employment section, the reference period is the duration of employment as specified by the respondent in the questionnaire for the primary and secondary full-time and part-time jobs held in the last 7 days and, if not in the last 7 days, all work in the last 12 months. All individuals 6 years and older were interviewed. Income is annualized based on the frequency the wage was received (variable P5B19B; P5C38B; P5D54C) and a six day work week is assumed for daily wage earners. In kind that is reported for the previous month income (P5B21B; p5b23b; p5b24b; p5b256; P5C40B; P5D56B) is annualized by multiplying by 12. The value of uniforms or other clothing received (P5B25B; P5D59B) is annualized by the number of times it was received (P5B25C; P5D59C). All annualized wages and then weighted by the share of the year the individual worked in that job (P5B15A; P5C35A; P5D51A).
- The classification of wage employment activities into industries and skilled/unskilled categories follow the United Nations International Standard Classification of Occupations (ISCO) 88 codes and the *Clasificación Uniforme de las Actividades Económicas de Nicaragua* (CUAEN) which corresponds with the UN International Standard Industrial Classification for All Economic Activities (ISIC). Given the survey classification of each employed household member by industry, the employment sectors include: (1) Agriculture, Livestock, Hunting and Fishing, (2) Mining, (3) Manufacturing, (4) Electricity and Utilities, (5) Construction, (6) Commerce, (7) Transportation, Storage and Communications, (8) Finance, Insurance and Real Estate, (9) Services and (10) Other Industries.
- Earnings from wage employment are net of contributions and taxes and include all in-cash and in-kind benefits in cash received from the employer.
- The Self Employment (Selfemp) section accounted for income from nonfarm enterprises owned by the household. The reference period was the last 2 weeks for revenues. For expenditures, the reference period is chosen by the respondent. Income from nonfarm enterprises is disaggregated by industry (following the ISIC codes) in order to convey the diversity of household activities.
- For all sections, whenever information was available regarding the share of a business, enterprise, or any other income activity owned by the household, the income earned from that activity was weighted by the share owned by the household.
- Self-employment income is annualized by multiplying revenues and costs of the previous two weeks by 26 and scaling it down by the fraction of the previous year the enterprise was in operation (variable S8A12 divided by 12). Input expenditures for non farm enterprises were annualized based on the reported frequency of the expenditure (S8B201), assuming a six-day work week for daily expenditures.
- A final outlier check is imposed at the end of the Aggregateincome.do file in which households with income shares from any given activity greater than or less than 3 (300%) are dropped from the final income aggregate. Using these criteria, 51 households are dropped from this survey.
- Only information on present household members is considered in the final income aggregate. We apply the definition used in the survey which defines presence in the household as having resided in the households at least 3 months of the previous 12 months for non-head household members. Household heads are included regardless of their location status since they can still serve as primary income sources. The RIGA definition would be based on a

minimum 6 month presence, but the raw data does not enable this definition to be applied; therefore, the survey's definition is used instead.

- Participation and income share variables for all income components are included in the final income aggregate.

The programs that calculate each household's income aggregate component are summarized in Table 1. Tables 2 and 3 summarize the results from the created income aggregate.

**Table 1**

<b>Program Name (Do file)</b>	<b>Input Data Files</b>	<b>Output Data Files</b>	<b>Output Variables</b>
Sample	AGROPEC.DTA VIVIEND.DTA CONSUMO1.DTA	Sample.dta	
Prices	AGROPEC.DTA PRECIOS.DTA GASTOSA.DTA PRECIOS.DTA Sample.dta	price_depto.dta price_muni.dta price_segm.dta price_unit.dta	pricedata1 pricedata2 pricedata3 pricedata4 pricedata5 pricedata6 pricedata7 pricedata8 pricedata9 pricedata10 pricedata11 pricedata12
Food	GASTOSA.DTA price_depto.dta price_muni.dta price_segm.dta price_unit.dta	Food.dta foodown.dta foodown_Crop.dta foodown_livestock dta	Foodpurchimp Foodfreeyrimp Fooddownyrimp Foodbartyrimp Fooddownyrimp
Agbyprod	AGROPEC.DTA Sample.DTA	agbyprod1.dta  agbyprod2.dta	lvstbyprdconsimp lvstbyprdsoldimp lvstbyprdgiveimp cropbyprdsoldimp cropbyprdconsimp cropbyprdgiveimp lvstbyprcons2imp lvstbyprsold2imp cropbyprsold2imp cropbyprcons2imp
Aglabor	AGROPEC.DTA Sample.DTA	aglabor.dta	laborexpimp

Agother	AGROPEC.DTA Sample.DTA	farmexp.dta techassistexp.dta Agother.dta	farmsrvexpimp farmtechexpimp otherfarmexpimp
Cropincome	AGROPEC.DTA            agbyprod1.dta agbyprod2.dta backyardcropexp.dta backyardcropinc.dta cropexp.dta cropincfores.dta cropinc1.dta aglabor.dta Agother.dta foodown_crop.dta	cropexp.dta cropincfores.dta cropincprice.dta   cropinc1.dta      backyardcropexp.dta backyardcropinc.dta  <b>Cropincome.dta</b>	cropexpimp forestincimp pricedata1 pricedata2 pricedata3 pricedata4 pricedata5 pricedata6 cropsoldimp ownconsimp laborimp seedimp fodderimp byprodimp barterimp lostimp rentexpimp cropexp1imp other2imp owncons2imp cropsold2imp <b>cropincome1</b> <b>cropincome2</b>
Employment1	DEMO.DTA ACTEC.DTA	employ1.dta employ2.dta employ3.dta <b>Employment.dta</b>	wgeimp wgeimp wgeimp <b>wgeimp1_1</b> <b>wgeimp2_1</b> <b>wgeimp3_1</b> <b>wgeimp4_1</b> <b>wgeimp5_1</b> <b>wgeimp6_1</b>

			wgeimp7_1 wgeimp8_1 wgeimp9_1 wgeimp10_1 wgeimp1_2 wgeimp2_2 wgeimp3_2 wgeimp4_2 wgeimp5_2 wgeimp6_2 wgeimp7_2 wgeimp8_2 wgeimp9_2 wgeimp10_2 wgeimp1_3 wgeimp2_3 wgeimp3_3 wgeimp4_3 wgeimp5_3 wgeimp6_3 wgeimp7_3 wgeimp8_3 wgeimp9_3 wgeimp10_3
Livestock	AGROPEC.dta  agbyprod1.dta agbyprod2.dta backyardlivstexp.dta backyardlivstinc.dta livstexp.dta livstinc.dta foodown_livestock.dta	livstexp.dta livstinc.dta backyardlivstexp.dta backyardlivstinc.dta  <b>Livestock.dta</b>	livstinpt1imp livstsold2imp livstinputimp livstsoldimp patioconsimp <b>livstincimp</b>
Otherincome	GASTOSB.DTA Sample.dta	otherinc1.dta  otherinc2.dta  <b>Otherincome.dta</b>	nonfarmrntimp otherinc3imp otherinc1imp otherinc2imp otherinc4imp othincimp <b>otherincimp</b>

Rentagric	AGROPEC.DTA	rentagricinc.dta rentagricexp.dta <b>Rentagric.dta</b>	farmrntincimp shrcropincimp shrcropexpimp <b>farmrntimp</b> <b>shrcropimp</b>
Selfemp	NEGONV.DTA  nonfarm1.dta nonfarm2.dta	nonfarm1.dta  nonfarm2.dta <b>Selfemp.dta</b>	hhexpmatimp hhexplabimp hhrev1imp hhexpimp <b>selfimp1</b> <b>selfimp2</b> <b>selfimp3</b> <b>selfimp4</b> <b>selfimp5</b> <b>selfimp6</b> <b>selfimp7</b> <b>selfimp8</b> <b>selfimp9</b> <b>selfimp10</b>
Transfers	GASTOSB.DTA  EDUC.dta trans1.dta trans2.dta trans3.dta	trans1.dta  trans2.dta  trans3.dta <b>Transfers.dta</b>	pensions1imp privtrans1imp pensions2imp privtrans2imp socialassistimp pubtransimp privtransimp <b>Transfersgrossimp</b>
Aggregateincome	Sample Cropincome Employment Livestock Otherincome Rentagric Selfemp Transfers	Income	agr_wge nonagr_wge crop1 crop2 livestock selfemp transfers other totincome1 totincome2

**Table 2**

<i>Nicaragua 1998</i>		1938 Rural HH Observations		Rural, Wiegthed, Córdoba			Rural, Wiegthed, USD		
<i>Variable</i>		<i># Participants</i>	<i>Participation Rate</i>	<i>Returns to Participation- Participant HHs</i>	<i>Returns to Participation- All HHs</i>	<i>Share of Total Income- All HHs (Mean of Shares)</i>	<i>Share of Total Income- All HHs (Share of Means)</i>	<i>Returns to Participation- Participant HHs</i>	<i>Returns to Participation- All HHs</i>
<b>agr_wge</b>	Wage Employment- Agriculture	737	41.74%	8,167	3,409	25.38%	23.30%	772	322
<b>nonagr_wge</b>	Wage Employment- Nonfarm	566	37.89%	12,902	4,888	22.64%	33.41%	1,219	462
<b>crop1</b>	Crop Production	1,452	73.66%	2,226	1,640	18.99%	11.21%	210	155
<b>livestock</b>	Livestock Production	1,326	68.13%	2,020	1,376	12.90%	9.41%	191	130
<b>selfemp</b>	Non-ag Self Employment	369	22.47%	10,055	2,259	10.99%	15.44%	950	214
<b>transfer</b>	Total Transfers	626	32.59%	2,766	901	7.85%	6.16%	261	85
<b>other</b>	Other Income Sources	64	4.11%	3,789	156	1.25%	1.06%	358	15
<b>totincome1</b>	Total Household Income	1821	99.70%	14,674	14,629	100.00%	100.00%	1,387	1,383

<b>Percent Rural (Weighted)</b>	<b>43.24%</b>
<b>Córdoba/USD (1998)</b>	<b>10.58</b>

Notes:

1. Source data: 1998 Encuesta Nacional de Hogares Sobre Medición de Niveles de Vida (EMNV).
2. Exchange rate used comes from the World Bank World Development Indicators database.
3. The variable "crop1" is distinguished from "crop2" in the way home consumption of own production of crops (owncons) is calculated. In crop1, owncons is calculated from the question in the agricultural production section of the household questionnaire that asks about household consumption of agricultural production. For crop2, owncons is calculated from the Food Expenditure section of the household questionnaire. Total household income "totincome1" and "totincome2" are therefore calculated with the corresponding crop income variable.
4. All values reported are annual and net of costs (with the exception of income from transfers and land rent, which are gross receipts).



**Table 3**

<i>Nicaragua 1998</i>	1938 Rural HH Observations	Rural, Wiegthed, Córdoba					Rural, Wiegthed, USD		
<i>Variable</i>		<i># Participants</i>	<i>Participation Rate</i>	<i>Returns to Participation- Participant HHs</i>	<i>Returns to Participation- All HHs</i>	<i>Share of Total Income- All HHs (Mean of Shares)</i>	<i>Share of Total Income- All HHs (Share of Means)</i>	<i>Returns to Participation- Participant HHs</i>	<i>Returns to Participation- All HHs</i>
<b>agr_wge</b>	Wage Employment- Agriculture	737	41.74%	8,167	3,409	24.75%	22.08%	772	322
<b>nonagr_wge</b>	Wage Employment- Nonfarm	566	37.89%	12,902	4,888	22.52%	31.66%	1,219	462
<b>crop2</b>	Crop Production	1,405	71.11%	3,444	2,449	22.94%	15.86%	326	231
<b>livestock</b>	Livestock Production	1,326	68.13%	2,020	1,376	11.51%	8.92%	191	130
<b>selfemp</b>	Non-ag Self Employment	369	22.47%	10,055	2,259	9.24%	14.63%	950	214
<b>transfer</b>	Total Transfers	626	32.59%	2,766	901	7.90%	5.84%	261	85
<b>other</b>	Other Income Sources	64	4.11%	3,789	156	1.14%	1.01%	358	15
<b>totincome2</b>	Total Household Income	1821	99.63%	15,496	15,438	100.00%	100.00%	1,465	1,459

<b>Percent Rural (Weighted)</b>	<b>43.24%</b>
<b>Córdoba/USD (1998)</b>	<b>10.58</b>

Notes:

1. Source data: 1998 Encuesta Nacional de Hogares Sobre Medición de Niveles de Vida (EMNV).
2. Exchange rate used comes from the World Bank World Development Indicators database.
3. The variable "crop1" is distinguished from "crop2" in the way home consumption of own production of crops (owncons) is calculated. In crop1, owncons is calculated from the question in the agricultural production section of the household questionnaire that asks about household consumption of agricultural production. For crop2, owncons is calculated from the Food Expenditure section of the household questionnaire. Total household income "totincome1" and "totincome2" are therefore calculated with the corresponding crop income variable.
4. All values reported are annual and net of costs (with the exception of income from transfers and land rent, which are gross receipts).