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The Dominican Republic Central Bank National Household Budget Survey,
1976-77: Status of Computational Facilities

A Report to the USDA/OICD Nutrition Economics Group,
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Economic Analysis of Agricultural Policies

This report summarizes the findings of a two-week trip to the Dominican Republic, July 8-21, 1979, to evaluate the data from the Central Bank's 1976-77 nationwide household budget survey. The report will concentrate on the computational aspects of the evaluation. For a complete report on the potential uses of the data in studies on the consumption effects of agricultural policies, see Phillip Musgrove's report.

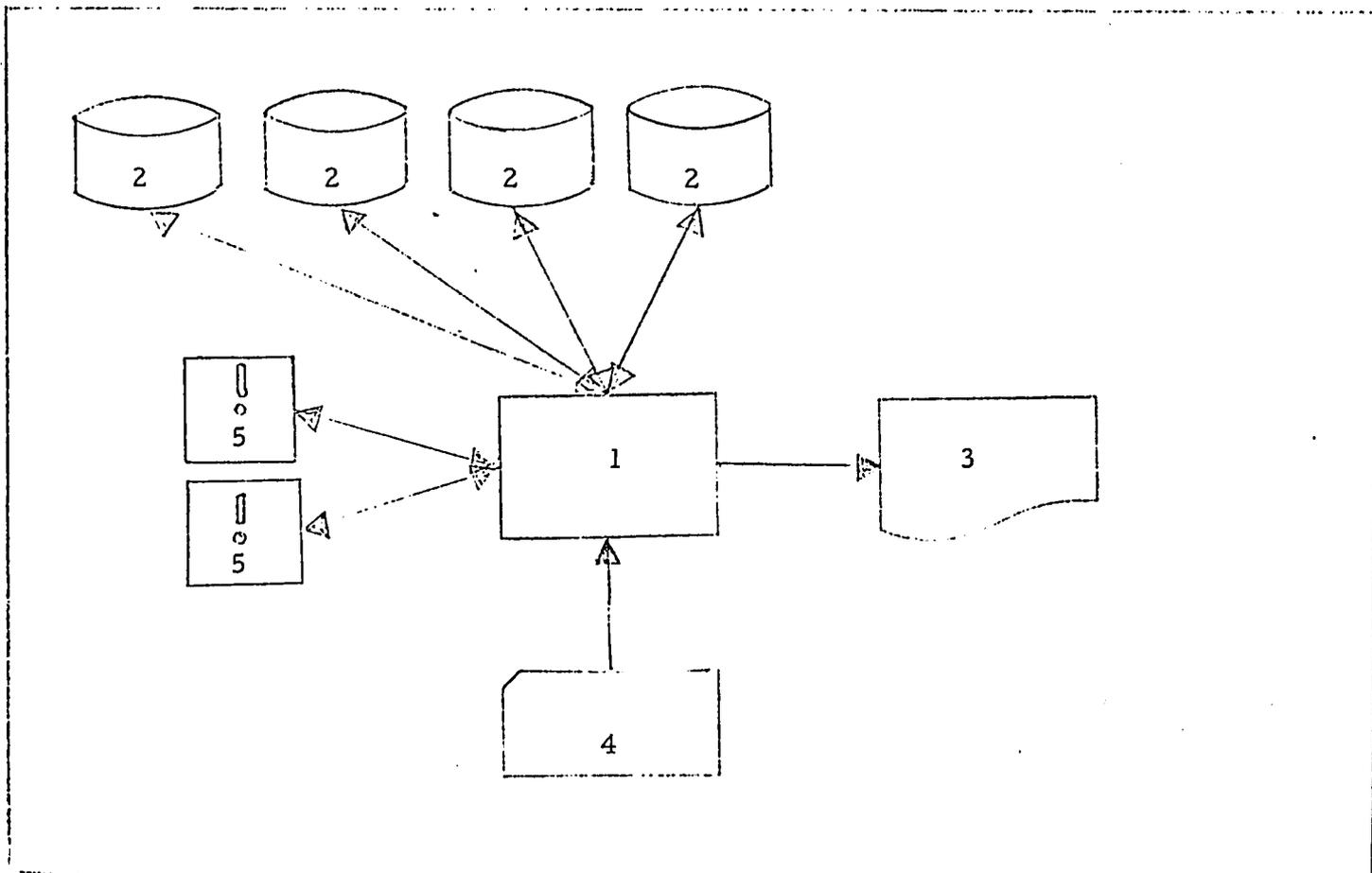
Most of our time was spent with people in the Bank's Division of Economic Studies, the Bank's Computation Center, and from Dato Centro -- a private firm under contract with in the Central Bank to produce some editing and analysis of the data. My primary contacts were Gumersindo del Rosario and Gladys Santana from Economic Studies, Antonio Rodriguez and Aquiles Moya from the Computation Center, and Oscar Gomez and Jose Sanchez from Dato Centro. I met twice with Ruben Nunez of SEA's Department of Information, Statistics, and Computing and I talked with several members of his staff. Both Phillip Musgrove and I visited Felipe Manteiga at the USAID mission, once for a briefing, and once at the end of the mission, for a debriefing.

Status of Household Consumption Survey Data

The Household Consumption Survey data (HCS) is being processed on the Central Bank's IBM S/370 model 115 DOS-ES operating system. Figure 1 gives the configuration of the system.

The Bank's Computation Center personnel and contractors from Dato Centro have been using the HCS data on a regular basis at the Bank's facilities. They have created several subfiles, all of which include

Figure 1:
CONFIGURACION DEL SISTEMA 370/115 DEL BANCO CENTRAL



Descripción del equipo. -

- 1- CPU de 164 K de memoria real y 392 K de memoria virtual; punto flotante.
- 2- Unidades de almacenamiento en disco 3340 de 70 Mega-Bytes c/u.
- 3- Impresora de 600 L.P.M.
- 4- Lectora de tarjetas de 80 columnas; velocidad de 600 T.P.M.
- 5- Unidad lectora-grabadora de diskettes; dos estaciones independientes. Registros de hasta 128 Bytes.

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new variables created by operations on or modifications of variables which already exist on the file. They have run several consistency checks and have begun to edit the data. They have run regressions using the data.

Organization of HCS Data Files and Their Limitations

The HCS data file is organized logically by households. For each household there are five different record types, as follows:

Type 1 = household record; describes living quarters of the household; 1 record for each household;

Type 2 = household record; describes goods, gardens and animals the household owns; 1 record for each household;

Type 3 = household-member record; describes characteristics of household-member; 1 record for each household-member;

Type 4 = expense record; describes an expense of household, i.e., what was purchased, how much of it was purchased and how much it cost; 1 record for each type of item the household purchased during the week;

Type 5 = household-income record; describes each source of income for the family; 1 record for each source of income.

The attached record descriptions and codebook give the layout of the data. (The codebook is a first draft only. If there are any discrepancies between it and the record descriptions, the latter should be used).

Each record type is represented as a separate card image of 85 bytes. Although the codebook seems to represent one long, continuous record of 175 variables, as on a tape or disk, in reality, each record type is stored in a separate disk file. Thus all the Type 1's are stored together on one disk file, all the Type 2's on another disk file, etc.

Because the data is stored this way, additional variables have been added to the end of each record to make analysis between variables that are located on different records types possible. In no case were the original lengths of the records greater than 44 bytes. The addition of the extra variables gives every record type a uniform length of 85 bytes.

The major limitation of the data is in the structure of its storage. It is, practically speaking, unusable for major analytical work in its current state. My first, and most important, recommendation, is that the data be reorganized into one uniform-length record per household interviewed. Instead of five types of records stored in five separate locations, each household should have one long, continuous record.

Because the number of records of Types 3, 4, and 5 is not uniform over all the households surveyed, the merging of the five record types into one record per household involves several steps. For Type 3 there may be between two and 27 records, depending on the size of the household. For Type 4 there may be from one to 1,158 records, depending on the number of items and services the household purchased during the week they were surveyed. For Type 5 there may be from 0 to 32,211 records.

The first task in compiling a new uniform record is to determine the distribution of the number of records of Types 3 and 5 over the households in the survey. This is done so that a specific length can be assigned to the area on the new, uniformly-sized record that corresponds to the unknown number of Type 3 records and the unknown number of Type 5 records. For example, record Type 3 has 41 bytes of original data on it (leaving out the 44 bytes that have added on the end of each record). One could immediately assign an area of $1107 (41 * 27)$, 41 bytes for each possible member of the household) to Type 3 data on the uniform record being constructed. But this would be extremely wasteful of space if, for instance, 99.9% of the households surveyed have household sizes of 20 persons or less. In such a case it would make sense to only allocate 820 bytes ($41 * 20$) for Type 3 data. Those households with 21 or more members would simply be deleted from the file. The point is that it is important to determine the distribution of the number of records of Type 3 and 5 to make a rational decision on saving space. Each "unit" dropped results in approximately 164,000 bytes saved over the entire file (e.g., if one decided to drop all households having 27 members, accepting for analysis only those with 26 members or less, one "unit" would have been dropped). But, in no case, should more than one percent of the households be deleted. Deletion of any household will necessitate reweighting of the file (see below).

Once a decision on the maximum length to be assigned on the new uniform household record to each of the two areas representing records of Type 3 and 5, each household can be assigned that many bytes of space. If the household does not have enough data to fill up the

assigned space, it must be filled in with zeroes (0). For example, a decision could be made to limit the space assigned to household member characteristics, Type 3 data, to 20 units (any household with 21 members or more is to be deleted from the file), or in terms of bytes, 820 bytes (41 bytes/record * 20 records). A household with only 15 members, i.e., 15 Type 3 records, would fill up only 615 of the 820 bytes assigned to it. The solution is to assign the household five extra "members" who have data values of 0 for all variables. Type 5 records are to be treated similarly.

Type 4 records must be treated differently. Space for all 1,158 possible records should be allocated to the extent that all 1,158 expenses are reported by at least one household. If any expense failed to be reported at least once the area allocated to Type 4 records could be shortened by 37 bytes (the present size of one Type 4 record). Analogous to the steps followed for Types 3 and 5, a decision may be made to delete an expense record if 99% of the households do not report such an expense. It is important to emphasize that only an expense record should be deleted in such a case -- not an entire household record.

The uniform household record would be laid out as follows (assuming none of the changes recommended below, except for the deletion of the extra variables that have been added to each record):

bytes	description
1-36	Type 1 area
37-76	Type 2 area
77-41x	Type 3 area
41x+1-41x+37y	Type 4 area
41x+37y+1-41x+37y+44z	Type 5 area

where

x=maximum number of household members permitted on file;
 y = maximum number of expenses permitted on file; and
 z = maximum number of incomes permitted on file.

An alternative solution (an indexing method) is to create two variables for each household which record the number of Type 3 and 5 records each household has. Software could then be developed to read household member (Type 3) and household income (Type 5) records in a loop. Type 4 records would be treated exactly as explained above.

The choice between the two methods involves a trade-off of software development, maintenance, and usage versus space. While the indexing method saves considerable space relative to the uniform record, it involves the use of additional software to handle looping in all instances where the household member and income segments of the file would be used.

Whatever option is chosen, considerable space can be saved by removing the 14 or so variables that have been added to the end of each record. This means deleting everything after columns 36, 40, 41, 37, and 44 on record Types 1, 2, 3, 4, and 5 respectively.

Other needed changes in the file are

- 1). unidad de consumo - has field of 5 and only needs a field of 2; eliminate 3 unnecessary bytes;
- 2). ocupacion - change from field of 2 to field of 3 and recode alphanumeric codes into purely numeric values;
- 3). codigo del concepto - has field of 8 and needs field of 6; eliminate 2 unnecessary bytes;
- 4). ma a o clase - eliminate entirely since it is not being used; this will eliminate 2 unnecessary bytes;
- 5). mes - eliminate as redundant variable; code for week gives month also; will eliminate 2 unnecessary bytes ;
- 6). ano - eliminate as redundant variable; code for week gives year also; will eliminate 1 unnecessary byte ;

- 7). huerto de arboles frutales - recode to 0 = no, 1 = si; current code of 0 = no, 2 = si is confusing;
- 8). aves de corral - recode to 0 = no, 1 = si; current coding of 0 = no, 3 = si is confusing;
- 9). animales - recode to 0 = no, 1 = si; current coding of 0 = no, 4 = si, is confusing;
- 10). unidad de consumo - Musgrove feels the measures used here are highly arbitrary and that this variable should be eliminated;
- 11). fuente de ingreso - self-consumption of goods produced or goods received as gifts are coded as income by taking the expense code of the good or service and changing the first digit to 5; unfortunately this renders the analyst unable to distinguish between some goods because all 6 digits of the expense code were needed to make the good unique in the coding scheme used by the Bank; all incomes coded with values between 501012-590990 should be recoded into one value standing for self-consumption or gift;
- 12). unidad - 02 = uno(a) and 16 = RD\$ are redundant; 16 should be eliminated;
- 13). ponderacion - new weight variable will have to be created and added to the file; the original survey was carefully stratified so that no weights would have to be used; however, some households were never interviewed; to counter this problem, dummy households, with responses exactly like those of another household in those regions with interviews missing, were created; Musgrove recommends elimination of these dummy records and substitution of a weighting scheme; weights will have to be used if any households are eliminated from the file in the process of restructuring the data as suggested above.

Software for Accessing Using the Data

The basic software for reading the HSC data is an assembler language subroutine of the IBM S/370 DOS operating system called LEE5DS. LEE5DS can be called from any FORTRAN program or subroutine. On each call it transmits to the program a logical record of a sequentially-blocked data file. It is capable of reading segments of

a record or the record in its entirety, as specified by the user. LEE5DS is described in full in the IBM System 1360 disk Operating System document FORTRAN IV Programmer's Guide (GC28-63973).

The Central Bank has only two useful packages with which to analyze the data. For cleaning and rudimentary statistics it has MINITAB, an all-purpose package. Like most all-purpose packages, it is extremely inefficient and should not be used for running regressions. The Bank and Data Centro have been using MINITAB primarily to make logical consistency checks.

For running regressions, the Bank has been using an IBM FORTRAN regression routine. There are some minor problems with the output routine which Bank programmers seem well on their way to solving.

SEA seems well-equipped with software and has expressed its willingness to share this software with the Banks' computer center. SEA has a more up-to-date version of MINITAB. But even this newer version of MINTAB is too restrictive for efficient editing of the data. In its place they use EDICION, a package specifically designed for cleaning data.

For crosstabs and other elementary statistics, SEA uses CENTS, a package developed by the U.S. Bureau of the Census. About to be installed is CONCUR, a crosstabs package from Panama. The packages BMD and REGRE give SEA substantial regression analysis capabilities. In addition, SEA has a linear programming package, HABERLY.

The fact that SEA has a computer identical to that owned by the Central Bank will make an exchange of packages that much easier. SEA has not only promised to share any and all packages it has with the Bank, but has also promised to install and debug these packages on the

Bank's system as well as to teach Bank staff how to use them.

Consistency Checks Recommended

Because Data Centro had already begun consistency checks on the data I made no checks myself. The following is a list of the consistency checks I recommend. Those marked with an asterisk (*) are already being undertaken by Data Centro.

* type of record \in [1,5]

* municipality \in [01,39]

municipality = Distrito Nacional(01) \Rightarrow zone = 1 or 7

municipality = Santiago(02) \Rightarrow zone = 2 or 7

municipality = San Francisco de Macoris(05), Puerto Plata(08), San Juan(19), San Pedro de Macoris(11, or La Vega(14) \Rightarrow zone = 3 or 7

municipality = Higüey(03), Azua(04), Moca(06), Bani(07), San Cristobal(09), Mosenor Nouel(15), Villa Altigracia(27), Hato Mayor(30), or Nagua(36) \Rightarrow zone = 4 or 7

municipality = El Seibo(13), Gaspar Hernandez(16), Nizao(17), San Jose de Ocoa(18), San Jose de las Matas(19), Tamboril(20), Fantina(24), Comendador(26), Bayaguana(29), Vicente Noble(31), Tamayo(32), Sanchez(33), Pepillo Salcedo(35), Laguna Salada(38), or Duverge(39) \Rightarrow zone = 5 or 7

municipality = Hostos(21) or Pedro Santana(25) \Rightarrow zone = 6 or 7

municipality = Cotui(12), Altamira(22), Los Hidalgos(23), Yamasa(28), El Cercado(34), or Tenares(37) \Rightarrow zone = 7

*zone \in [1,7]

zone = 1 \Rightarrow municipality = 01

zone = 2 \Rightarrow municipality = 02

zone = 3 \Rightarrow municipality = 05, 08, 10, 11, or 14

zone = 4 \Rightarrow municipality = 03, 04, 06, 07, 09, 15, 27, 30, or 36

zone = 5 \Rightarrow municipality = 13, 16-20, 24, 26, 29, or 31

zone = 6 \Rightarrow municipality = 21 or 25

* week \in [01,48]

* type of housing \in [1,4]

* materials used in walls \in [1,5]

- * materials used in roof € [1,4]
- * materials used in floor € [1,4]
- * type of structure € [1,3]
- * kitchen € [1,3]
- * lighting € [1,3]
- * fuel € [1,5]
- * water € [1,5]
- * toilet € [1,5]
 - toilet = private or shared toilet(1 or 2) ⇒ water = running inside or outside of house(1 or 2)
- * tenancy status € [1,5]
 - tenancy status = owns(1) ⇔ presence of imputed rent expense(201054)
 - tenancy status = owns but has not paid off mortgage(2) ⇔ presence of expense for montly mortgage payment(201031)
 - tenancy status = rents(3) ⇔ presence of expense for montly rent(201014)
- * number of rooms in house € [01,99]
- * number of rooms used by household € [01,99]
- * number of rooms used by household ≤ number rooms in house
- * number of edrooms € [1,9]
- * number of bedrooms ≤ number of rooms in house
- * number of rooms rented € [1,9]
- * number of rooms rented ≤ (number of rooms in house) - (number of rooms used by household)
- * number of rooms subrented € [1,9]
- * number of rooms subrented ≤ (number of rooms in house) - (number of rooms used by household)
- number rooms subrented > 0 ⇒ tenancy status = 3
- water included in rent € [1,2]
- electricity included in rent € [1,2]

garage included in rent € [1,2]
telephone included in rent € [1,2]
other things included in rent € [1,2]
state of house € [1,3]
radio € [1,2]
television € [1,2]
stove € [1,2]
refrigerator € [1,2]
washing machine € [1,2]
water heater € [1,2]
electric iron € [1,2]
electric vacuum cleaner € [1,2]
air conditioning € [1,2]
telephone € [1,2]
sewing machine € [1,2]
electric fan € [1,2]
blender € [1,2]
automobile € [1,2]
motorcycle € [1,2]
bicycle € [1,2]
vegetable garden € [0,1]
fruit trees € [0,1]
poultry € [0,1]
animals € [0,1]

member number € [01,27]

* member number = 1 \Leftrightarrow relationship to head = head(1)

* relationship to head of household € [01,20]

- * relationship = mother(5) or daughter-in-law(13) \Rightarrow sex = female(2)
- * relationship = father(4) or son-in-law(12) \Rightarrow sex = male(1)
- * relationship = not related to head(16-20) \Rightarrow type of home = home with unrelated persons(5-8)
- relationship = spouse(2) \Rightarrow marital status = married(2) or common-law(3)

* type of home \in [1,8]

- * home headed by common-law couple(2 or 6) and person is head of household or spouse of head (relationship to head = 1 or 2) \Rightarrow marital status = common-law(3)
- * home headed by married couple (1 or 5) and person is head of household or spouse of head (relationship to head = 1 or 2) \Rightarrow marital status = married(2)
- * home headed by male(3 or 7) and person is head of household (relationship to head = 1) \Rightarrow sex = male(1)
- * home headed by female(4 or 8) and person is head of household (relationship to head = 1) \Rightarrow sex = female(2)

* sex \in [1,2]

age

- age = 0 \Leftrightarrow age group = less than 1 year(0)
- age = 2 \Leftrightarrow age group = 2 years(2)
- age = 3 \Leftrightarrow age group = 3 years(3)
- age = 4 \Leftrightarrow age group = 4 years(4)
- age = 5 \Leftrightarrow age group = 5 years(5)
- age = 6 \Leftrightarrow age group = 6 years(6)
- age = 7 \Leftrightarrow age group = 7 years(7)
- age = 8 \Leftrightarrow age group = 8 years(8)
- age = 9 \Leftrightarrow age group = 9 years(9)
- age = 10-14 \Leftrightarrow age group = 10-14 years(10)
- age = 15-19 \Leftrightarrow age group = 15-19 years(11)
- age = 20-24 \Leftrightarrow age group = 20-24 years(12)
- age = 25-29 \Leftrightarrow age group = 25-29 years(13)
- age = 30-34 \Leftrightarrow age group = 30-34 years(14)
- age = 35-39 \Leftrightarrow age group = 35-39 years(15)
- age = 40-44 \Leftrightarrow age group = 40-44 years(16)
- age = 45-49 \Leftrightarrow age group = 45-49 years(17)
- age = 50-54 \Leftrightarrow age group = 50-54 years(18)
- age = 55-59 \Leftrightarrow age group = 55-59 years(19)
- age = 60-64 \Leftrightarrow age group = 60-64 years(20)
- age = 65-69 \Leftrightarrow age group = 65-69 years(21)
- age = 70-74 \Leftrightarrow age group = 70-74 years(22)
- age = 75-79 \Leftrightarrow age group = 75-79 years(23)
- age = 80-84 \Leftrightarrow age group = 80-84 years(24)
- age \geq 85 \Leftrightarrow age group = 85 or more years(25)

* marital status $\in [0,7]$

* literate $\in [0,2]$

* attends school $\in [0,3]$

* level of education $\in [1,7]$

* level of education = secondary, university, or vocational (2-6)
 \Rightarrow literacy = yes(1)

birthplace $\in \{001, 002, \dots, 115, 116, 150, 201, 202, 203, 209, 301, 302, \dots, 306, 309, 401, 402, \dots, 407, 409, 501, 502, \dots, 509, 601, 602, \dots, 609, 701, 702, \dots, 706, 709, 801, 802, 803, 809, 901, 902, 909\}$

* location of birthplace $\in [1,2]$

* length of residence $\in [0,5]$

length of residence = since birth(5) and birthplace ≤ 039 \in
 birthplace = municipality
 length of residence = since birth(5) \Rightarrow birthplace ≤ 150 (in
 Dominican Republic)
 length of residence = since birth(5) and zone ≤ 6 \Rightarrow
 location of birthplace = urban(1)
 length of residence = since birth(5) and zone = 7 \Rightarrow location
 of birthplace = rural (2)

* job status $\in \{11, 12, 21, 22, 23, 24\}$

job status = 11 \Rightarrow occupation = X0, X1, X2, X3 and industry = 000

job status = unemployed(12) \Rightarrow occupation category = outside of workforce(34)

job status = student(21) \Leftrightarrow occupational category = student(31)

job status = house wife(22) \Leftrightarrow occupational category = housewife(32)

job status = retired(23) \Leftrightarrow occupational category = retired(33)

job status = other persons outside work force \Rightarrow
 occupational category = other persons outside work force(34)

occupation

occupation = persons looking for 1st job(X0) or persons declaring no job(X2) \Rightarrow industry = not specified(0000) and occupational category = student(31), housewife(32), retired(33), other persons outside of work force(34), or not

declared(40)

* occupational category \in {1, 2, ..., 5, 11, 12, ..., 20, 31, 32, ..., 34, 40}

* person employed by household (occupational category = 4 or 18) \Rightarrow employed in private sector (sector = 2 or 4)

expenditures on:

imported wheat flour (101073) \Rightarrow origin of product = imported(3)
imported cookies (101263) \Rightarrow origin of product = imported(3)
imported crackers (101283) \Rightarrow origin of product = imported(3)
imported soda crackers (101303) \Rightarrow origin of product = imported(3)
imported cajuil seed (105083) \Rightarrow origin of product = imported(3)
imported tomato juice (106403)
imported grapes (107263) \Rightarrow origin of product = imported(3)
imported apple juice (107443) \Rightarrow origin of product = imported(3)
imported pear juice (107463) \Rightarrow origin of product = imported(3)
imported pineapple juice (107473) \Rightarrow origin of product = imported(3)
imported grape juice (107483) \Rightarrow origin of product = imported(3)
imported apricot juice (107493) \Rightarrow origin of product = imported(3)
imported cherry juice (107503) \Rightarrow origin of product = imported(3)
imported orange juice (107513) \Rightarrow origin of product = imported(3)
imported grapefruit juice (107523) \Rightarrow origin of product = imported(3)
imported bologna (108643) \Rightarrow origin of product = imported(3)
imported sausages (long) (108683) \Rightarrow origin of product = imported(3)
imported sausages (short) (108703)
imported duck (108833) \Rightarrow origin of product = imported(3)
imported turkey (108853) \Rightarrow origin of product = imported(3)
imported cheese balls (111313) \Rightarrow origin of product = imported(3)
imported butter (112143) \Rightarrow origin of product = imported(3)
imported margerine (112163) \Rightarrow origin of product = imported(3)
imported lard (112183) \Rightarrow origin of product = imported(3)
imported ground salt (113173) \Rightarrow origin of product = imported(3)
imported tomato sauce (113213) \Rightarrow origin of product = imported(3)
imported ketchup (113233) \Rightarrow origin of product = imported(3)

imported vinager (113313) ⇒ origin of product = imported(3)
 imported beer (1160339 ⇒ origin of product = imported(3)
 imported liquor (116063) ⇒ origin of product = imported(3)
 imported gin (116083) ⇒ origin of product = imported(3)
 imported wine (116123) ⇒ origin of product = imported(3)
 imported vermouth (116143) ⇒ origin of product =
 imported(3)
 imported whisky (1161639 ⇒ origin of product = imported(3)
 monthly repairs for rented houses (201021) ⇒ tenancy =
 rental(3)
 monthly repairs for owners who have not paid off mortgage
 (204041) ⇒ tenancy = owns, but has not paid off mortgage(2)
 monthly repairs for owners (201061) ⇒ tenancy = owns(1)
 monthly mortgage payment last month (201074) ⇒ tenancy =
 owns, but does not paid off mortgage
 telephone bill (202134) ⇒ telephone = 1
 television antenna (203702) ⇒ television = 1
 stove (203971, 203981, 203991) ⇒ stove = 1
 washing machine (203011) ⇒ washing machine = 1
 sewing machine (204031) ⇒ sewing machine = 1
 refrigerator (204031, 204041) ⇒ refrigerator = 1
 electric iron (204191) ⇒ electric iron = 1
 installation or repair of air conditioning (205334) ⇒ air
 conditioning = 1
 installation or repair o hot water heater (205344) ⇒ hot
 water heater = 1
 men's clothing (301012-301142, 301592-301612, 301954,
 302012-302722) ⇒ presence of at least one male in household
 women's clothing (301162-301402, 301622-301702, 301964,
 303012-304272) ⇒ presence of at least 1 woman or girl in
 household
 clothing for children under 2 years (301412-301432,
 301792-301832, 305012-305502) ⇒ presence of at least 1
 child 2 or under
 vaginal cream or spray (401843 or 401873) ⇒ presence of at
 least 1 woman over age of 10
 shave (402094) ⇒ presence of at least 1 man over age of 10
 sanitary napkins (402353) ⇒ presence of at least 1 woman
 over age of 10
 radios (403121-403151) ⇒ radio = 1
 television (403171) ⇒ television = 1
 bicycle (403482) ⇒ bicycle = 1
 school (404014-404124) ⇒ at least 1 member of household
 attending school
 automobile (405011-405044, 405122-405222) ⇒ automobile = 1
 * unit of measurement ∈ [01,31]
 *origin of product ∈ [1,3]
 * source of income ∈ [5011012-590990]
 * type of income ∈ [1,2]

Additional Observations and Recommendations

The primary computational problem is a lack of documentation. Central Bank computer personnel as well as contractors from Dato Centro have consistently failed to document modifications and transformations of the data and regressions on the data. The major problem is twofold: a lack of training in the necessity of good documentation and a lack of personnel.

I recommend that a full-time programmer with a strong background in documentation or library sciences be employed for six months at the Central Bank. This person would oversee the cleaning of the data, both in the sense of reorganizing the files and in the sense of editing and consistency checks.

The following software needs should be met at the Central Bank:

- 1). software to reorganize the data as recommended above;
- 2). installation, testing, and debugging of SEA software in the following order:
 - a). EDICION and MINITAB (new version)
 - b). CENTS
 - c). REGRE and BMD
 - d). HABERLY (optional); and
- 3). unit conversion routine - many times throughout the data, the exact same consumption items are reported being consumed in different units (e.g., rice was purchased in pounds by the majority of households, but in packages by others). This would be a simple routine to convert all expenditures on any item to a single unit of measurement. The difficult part is the research involved in creating the conversion matrix. The programming itself should be fairly simple.

All effort possible should be made to help SEA keep their promise to provide software assistance to the Central Bank. The Central Bank has the data and will not release it until it is properly cleaned. Therefore, it

is to the advantage of everyone concerned to devote as many resources as possible to upgrading the Bank's computing facilities to the point where it can produce a cleaned data set in the shortest time possible.

Documentos Fuente (Form. No.)		Datos Fuentes Preparado por:				Frecuencia	Volumen
ENCUESTA NACIONAL DE INGRESOS Y GASTOS FAMILIAR (ENIGF)		LIC. GUMERCINDO DEL ROSARIO				EVENTUAL	
Programa Nombre y Código			Archivo Salida Id.	Registro Id. No.	Preparado por	Fecha	
				TIPO 2	AQUILES MOYA R	E-78	
1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64
65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88
89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104
105	106	107	108	109	110	111	112
113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128
129	130	131	132	133	134	135	136
137	138	139	140	141	142	143	144
145	146	147	148	149	150	151	152
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1. COPIA DEL NIVEL ECONÓMICO DEL Cónyuge o Pareja
2. TOTAL MIEMBROS POR FAMILIA
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