



Directorate of Surveys
Coordination of Agriculture
Coordination of Labor and Income

Agricultural household in the context of household surveys and Agricultural Census in Brazil

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Presentation outline

- Objectives
- The agricultural household (concepts)
- Materials and Methods
- Methodological Procedures
- Results
- Final Remarks

Background

Household surveys have been used by many groups of Brazilian researchers in order to know more about the living conditions of the rural population;

- However, characterizing the rural population is by no means an easy task, bearing in mind how hard it is to apply its concept to the understanding of spatial boundaries of this population;
- Another point is that decisions of production and consumption for some rural areas cannot be separated and in sequence. The farmers' families are family-farm units that combine different functions of production, consumption and even reproduction;

As alternative, some estatistics has used the agricultural household concept as a unit of analysis

Objetive

- The purpose of this study is to discuss and advance the concept of the agricultural household in the Brazilian context, taking into account information available in household surveys and the agricultural census.
- To explore it, three kinds of household estimates were prepared:
 - 1) **Total number of agricultural households;**
 - 2) **Farming income;**
 - 3) **Off-farm income.**

We chose income as an element for study because it is present in these two type of surveys, namely, farm and family, and is a key element for characterizing the agricultural household.

The agricultural household

Wye Group Handbook works with a concept for OECD countries. This handbook defined an agricultural household as:

- i) **Broad concept** - includes any household that derives some income from agriculture, even when this is the smallest portion of the earnings or allocation of working hours;

- ii) **Restricted concept** - only includes households that depend primarily on agricultural activities for their subsistence, defined as those whose main part of their total income comes from their own activity in agriculture;

- iii) **Marginal concept** - when the main source of income comes from other non-agricultural sources, obtained by (i - ii).

The agricultural household

The three concepts (broad, restrict, marginal) can be applied in Brazil, although it is being expanded by researchers in the design of anti-poverty policies:

At least one person in the household has principal occupation in agriculture (farming or hired labor work)

	MM	%
Total of households*	54.3	100.0
Agricultural households - expanded concept.....	9.5	17.6
Agricultural households - broad concept (farming work)	4.3	7.8
Households containing hired labor in agriculture	5.3	9.7
(principal occupation)		

This study adopt the Wye Group Handbook definitions

Agricultural household ⇔ Family farm

Materials and Methods

Agricultural Census (2006)

National Household Sample Survey (PNAD/2006)

Household Budget Survey (POF/2003)

The procedures to achieve the results took slightly different routes and used concepts that were presented somewhat differently between **census** and **household surveys**:

Units of analysis - HH Survey → household

Ag Census → agricultural establishment

Income - Difference in meaning of the calculated farming income!!!

HH survey → disposal (earned) income (takings → positive)

Ag Census → generated (net farm) income (could be negative)

Materials and Methods

Non-continuous areas HH Survey → associated with one household
Ag Census → more than one establishment

Seasonality PNAD → covered the week of September 24-30
POF and Ag Census → covered the year

Self-subsistence PNAD → it can't be assessed
POF and Ag Census → can be assessed
(This study did not assess self-subsistence by POF)

Accuracy of off-farm income reported

POF → Earnings are separate items in the questionnaire, which stays in the household for a nine-day period

PNAD and Ag Census → Earnings are more aggregate. The questionnaire are completed in a short space of time by the enumerator

PNAD and POF → revenue for each member of family
Ag Census → family revenue as a whole

Methodological Procedures

2006 Agricultural Census: just individual farmer, unincorporated farm

1) Broad concept

1.1 - Gross Farming Income > 0

Adjusted GPV considering the additional for agribusiness > 0

1.2 - Net Farming Income > 0

Adjusted GPV considering the additional for agribusiness – current expenses > 0

2) Restricted concept

2.1 - Net Farming Income $>$ Off-farm wages

2.2 - Net Farming Income $>$ Off-farm income (non-farming work and pensions, allowance, social programs)

3) Marginal concept

(1.2 - 2.1)

(1.2 - 2.2)

4) Net Farming Income ≤ 0

Methodological Procedures

National Household Sample Survey (PNAD/2006) Household Budget Survey (POF/2003):

The proxy procedure was chosen considering the difference in concept of income between HH survey and census (disposal X generated income);

1) Broad concept

1.1 - Household - At least one person in the household has the principal occupation of self-employed or employer in agriculture

2) Restricted concept

2.1 - Head - The head has principal activity of self-employed, employer in agriculture

3) Marginal concept

(1.1 - 2.1)

Results

Table 1: Enumeration and income of agricultural households in the Agricultural Census - Brazil - 2006

Agricultural Household	Enumeration	Annual Aggregate Income (US\$ million)				
		Net Farming Income	Other farm earnings	Off-farm wages	Pension, allowances & social programs	Total Household Income
1 - Broad Concept						
1.1 - Gross Farming Income > 0	4.363.980	15.440	17	1.992	2.644	20.251
1.2 - Net Farming Income > 0	2.991.689	28.633	85	947	1.677	31.342
2 - Restricted Concept						
2.1 - Net Income > Off-farm wages	2.797.359	28.408	80	257	1.594	30.339
2.2 - Net Income > Off-farm Income	2.279.574	28.070	73	235	433	28.812
3 - Marginal Concept						
(1.2 - 2.1)	194.330	226	5	690	83	1.003
(1.2 - 2.2)	712.115	563	11	711	1.245	2.531
4 - Net Farming Income <= 0	1.936.233	-16.176	111	1.361	1.136	-13.568

Source: 2006 Agricultural and Cattle Farming Census (micro-data)

When we only restrict the surplus agricultural households in the universe of positive gross farming income, around 1.4 million are excluded from this concept. The result is that when we assess the income in the universe of households with positive gross farming income (including those with surplus and deficit), its added value is lower (US\$ 15 against US\$ 28 billion).

Results

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Source: 2006 Agricultural and Cattle Farming Census (micro-data)

Negative household income figure, which totals more than US\$ 13 billion, cannot reflect the actual living conditions of the families, since such a result is incompatible with a family's reasonable budget. However it is up to us to explain further that the agricultural census data would not be accurately and comprehensively registering the off-farm earnings

Deficit farms

A large proportion of the deficit farms have very small deficit

- 50% have less than US\$ 500 of negative balance
- 9% holds almost 90% of negative balance of the group

Results

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Source: 2006 Agricultural and Cattle Farming Census (micro-data)

US\$ 1.2 billion of the income from pensions, allowances and social programs, was distributed to the marginal households and US\$ 1.1 billion was allocated to households whose farming net income is zero or less (deficit) - around 90% of the government transfers. This reveals that the rural retirement and other income transfer programs are an effective tool against poverty in the countryside.

Results

Table 2: Composition of the agricultural household annual income - Brazil - 2006

Agricultural Household	Composition of Annual Income (%)				
	Net Farming Income	Other Farm Income	Off-farm Wages	Pension, allowances & social	Total Household Income
1 - Broad Concept					
1.1 - Gross Farming Income > 0	76,23	0,86	9,85	13,06	100
1.2 - Net Farming Income > 0	91,35	0,27	3,02	5,35	100
2 - Restricted Concept					
2.1 - Net Income > Off-farm wages	93,63	0,27	0,85	5,26	100
2.2 - Net Income > Off-farm income	97,43	0,25	0,81	1,50	100
3 - Marginal Concept					
(1.2 - 2.1)	22,50	0,45	68,76	8,27	100
(1.2 - 2.2)	22,26	0,45	28,11	49,18	100

Source: 2006 Agricultural & Cattle Farming Census (micro-data)

As we move within the agricultural household concept (1.1 to 2.2), the net income from farming becomes more important in the total income of the household, contrary to what happens with off-farm income. Off-farm income is very important for the marginal agricultural household.

Results

Table 3: Enumeration and income of agricultural households in PNAD (2006) and POF (2003) - Brazil

Agricultural household	Enumeration	Annual Aggregate Income (US\$ million)		
		Farming income	Other Income	Total
PNAD				
1 - Broad Concept				
1.1 - Household (any member)	4.252.644	15.086	13.316	28.402
2 - Restricted Concept				
2.1 - Head	3.842.872	13.449	9.063	22.512
3 - Marginal Concept				
3.1 - (1.1 - 2.1)	409.772	1.636	4.253	5.889
POF				
1 - Broad Concept				
1.1 - Household (any member)	4.418.335	9.208	20.881	30.089
2 - Restricted Concept				
2.1 - Head	3.473.224	8.377	16.288	24.665
3 - Marginal Concept				
3.1 - (1.1 - 2.1)	945.111	831	4.593	5.424

Source: National Household Survey - PNAD 2006; Family Budget Survey - POF 2003

The off-farm income in POF has a larger share in the household income (2/3), consequently it considers a larger number of marginal agricultural households. POF has a better assessment of the off-farm income.

Results - comparing enumeration

Table 4: Enumeration and income of agricultural households (Broad Concept) in Agricultural Census (2006), PNAD (2006) and POF (2003) - Brazil

Agricultural household (Broad Concept)	Enumeration	Annual Aggregate Income (US\$ million)		
		Farm income (a)	Other Income	Total
1 - Broad Concept				
Ag Census Gross Farming Income > 0	4.363.980	15.440	4.811	20.251
Ag Census Net Farming Income > 0	2.991.689	28.633	2.709	31.342
PNAD (proxy - any member farmer)	4.252.644	15.086	13.316	28.402
POF (proxy - any member farmer)	4.418.335	9.208	20.881	30.089
2 - Restricted Concept				
Ag Census Net Income > Off-farm Income	2.279.574	28.070	742	28.812
PNAD (proxy - Head farmer)	3.842.872	13.449	9.063	22.512
POF (proxy - Head farmer)	3.473.224	8.377	16.288	24.665

Source: 2006 Agricultural Census, National Household Sample Survey - PNAD 2006; Household Budget Survey - POF 2003
(a) Ag Census - net farming income; PNAD and POF, disposal income (takings from agriculture activities)

Broad concept - The enumeration are quite close.

Restricted concept - a very different enumeration is found.

This result is explained partly by the fact that in the census it is adopted income comparisons and HH Surveys a proxy.

Results - comparing income

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Farm income in the broad concept of gross income in the Census is similar to that of PNAD. However, its income is not comparable, starting with the differences mentioned above that one represents generated income (operating result of the farm) and the other earned income (takings).

Results - comparing income

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The differences POF (2003) and PNAD (2006), can not be attributed only to price inflation (22% in the period). In PNAD, the monthly income reported was calculated for the year by multiplying this figure by twelve, while POF only considered the months when there was income, therefore calculating a necessarily lower value for the year.

Results - comparing income

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In some cases the enumeration and total income are quite similar, but it is a false convergence. There are very important differences between the estimates of farm and off-farm income, even between the household surveys. Off-farm income is very low according to census data and much higher in the PNAD and POF. Farm income in the PNAD is much higher than in the POF, opposite is true of the off-farm income

Final Remarks

- The results indicate that we can use agricultural household as the unit of analysis in both surveys and characterize them correctly, from household surveys, the attributes associated with the family, while for census data, the characteristics of the productive sector;
- However, “borderline” variables between the farm and the household, such as income, for example, are not clearly represented when the aim is to recognize the mixed activity characterizing the agricultural household;
- The income variable seems to require more complex collection procedures, which permit longer and more detailed contact in completing the questionnaire, which to a certain extent is unfeasible in a short on-the-spot collection;

Final Remarks

- The ability of both types of survey – agricultural census and household – to measure variables that intertwine in these two contexts of the agricultural household, farm and family, deserve more in-depth studies on the coverage of the databases, requiring conceptual approaches between these surveys to portray this universe more clearly;
- It would be desirable surveys specially designed for investigating the agricultural household that considers both generated and disposal income;

Obrigado

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