



Occupation and Pluriactivity of the Families in the Southern Region of Brazil

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Summary

The pluriactivity of rural families is a subject of research already quite discussed in the international and national literature. However, some authors still raise questions about the reliability of the use of the data from the Continuous Survey of Households (in Brazil they are called National Household Sample Survey - PNAD). This article, focused on methodology, aims to verify the absolute and relative magnitude of families and pluriactivity in the Southern Region of Brazil by analyzing the reprocessing of microdata from the 2010 Population Census⁽¹⁾ and microdata from the Continuous Household Survey of 2011⁽²⁾ to verify their validity. For this, the families were separated, first, according to their position in the occupation in: employers, self-employed workers, employed workers and families of the unoccupied. For each position in the occupation, the families were subdivided according to branches of activities in: agricultural, non-agricultural and pluriactive. The results show that there are no significant differences between those obtained through the Population Census and those resulting from the Continuous Household Survey. Therefore, we concluded that both databases are valid for the continuity of the review of rural-urban relations and for rediscussing the relevance of the bi-univocal relationship between rural and agricultural and urban and non-agricultural.

Keywords: pluriactivity, rural families, rural-urban relationship, rural development

Ocupación y pluriactividad de las familias de la Región Sur de Brasil

Resumen

La pluriactividad de las familias rurales es un tema de investigación ya bastante discutido en la literatura internacional y nacional. Sin embargo, algunos autores todavía plantean cuestionamientos sobre la confiabilidad de la utilización de los datos de las Encuestas Continuas de Hogares (en Brasil se denominan *Pesquisas Nacionais por Amostra de Domicilios* – PNADs). Este artículo, de carácter metodológico, tiene como objetivo verificar la magnitud absoluta y relativa de las familias y de la pluriactividad en la Región Sur de Brasil mediante el análisis del reprocesamiento de los microdatos del Censo de Población de 2010⁽¹⁾ y los microdatos de la Encuesta Continua de Hogares de 2011⁽²⁾ para verificar su validez. Para tal, se separaron las familias, en primer lugar, de acuerdo con su posición en la ocupación en: empleadores, trabajadores por cuenta propia, trabajadores empleados y familias de no ocupados. Para cada posición en la ocupación, se subdividieron las familias de acuerdo con ramas de actividades en: agrícolas, no agrícolas y pluriactivas. Los resultados encontrados revelan que no hay diferencias significativas entre los que se obtienen mediante el Censo de Población y los que resultan de la Encuesta Continua de Hogares. Por lo tanto, se concluye que ambas bases de datos son válidas para que se dé continuidad a la revisión de las relaciones rural-urbano y para que se rediscuta la pertinencia de la relación biunívoca entre rural y agrícola y urbano y no agrícola.

Palabras clave: pluriactividad, familias rurales, relación rural-urbana, desarrollo rural

Introduction

Many studies point out the growing importance of non-agricultural incomes for the development of rural areas, highlighting, in particular, the phenomenon of the pluriactivity^a of rural families^b. Arkleton Trust's research⁽³⁾ on pluriactivity in European agriculture found that the level, composition, and evolution of income of agricultural households depended crucially, between 1987 and 1991, on the regional context (five study areas) and on the situation of pluriactivity (its greater or lesser intensity and diversification). This research showed that the agricultural workforce is increasingly directed to non-agricultural activities and activities related to agriculture outside the establishment, apart from the fact that pluriactivity was shown as a stable phenomenon and disseminated in all types of regions of the European Economic Community: 63 % of agricultural establishments present a member involved with non-agricultural activities.

The World Bank, on their part, produced innumerable reports recognizing that agriculture is not the exclusive activity and, in many countries, not even dominant, in rural areas, emphasizing the importance of non-agricultural income in these areas in developing or underdeveloped countries. According to the World Bank, this would really be an important component of development and of the reduction of rural poverty that should be considered in the actions to be implemented. The main recommendation for rural action strategies is to broaden the focus on the rural definition, abandoning the «strict approach of the agricultural sector»⁽⁴⁾⁽⁵⁾. According to this same understanding, the IBRD⁽⁶⁾ states that «the priority of [rural development] policies is to create more jobs, both in agriculture and in the non-agricultural rural economy».

In Brazil, in the nineties, professors Jose Graziano da Silva and Rodolfo Hoffmann of the Universidade Estadual de Campinas (Unicamp), State of São Paulo) led many investigations that arose in the scope of the Rurban Project. They used the microdata from the Continuous Survey of Homes (in Brazil, *National Household Sample Survey*,

^a Pluriactivity refers to the reconciliation of agricultural activities with non-agricultural activities (inside or outside the establishment) within members of the same family. Pluriactive families are at the center of contemporary discussions on rural development - comprising the development of the whole society (rural and urban), according to OECD⁽⁷⁾ and BIRD⁽⁶⁾ among others.

^b For a more detailed review of this literature, see, among others, Kageyama⁽⁸⁾ and Schneider⁽⁹⁾.

PNAD^c), which contributed to revealing rural economic and social dynamics in Brazil, allowing the dimensioning and characterization of the presence and importance of the non-agricultural activities within the rural residents, farmers and not farmers. This enabled a statistical treatment to a set of behaviors of the different types of families that structure Brazilian rural areas, particularly family agriculture. The visualization in numerical terms enlightened the perception of the importance not only of the family farmers but of the other types of families residing in the rural areas of Brazil, highlighting their economic and social contribution to the development of the country.

The possibility of accompanying and analyzing the behavior, equally important, of the categorization of rural producers over the years, according to the position in the occupation, type of occupation and position in the family, as well as income by family and gender and the sources of income, have helped clarify and reveal the trajectory of Brazilian rurality in a panoramic way. The research that was developed with the methodology of the Rurban Project -especially the use of the typology of families that this project elaborates- helped to reveal substantially the regional differences of the categories of farmers and rural non-farmers, and allowed the deepening of the knowledge about the dynamics and trends of employment, income and living conditions of rural people and families, no longer in a static scenario, but with a move towards a more dynamic analytical framework, that enables an almost continuous analysis over time. The obtained results increased the rigor of the analyses and allowed many interpretations about the reality of Brazilian rurality, and particularly about family agriculture.

The Rurban Project consisted of three phases and began to be developed based on the dissemination made by the IBGE (Brazilian Institute of Geography and Statistics) of the microdata from the Continuous Household Survey, which made it possible to carry out a new characterization of the population living in the Brazilian rural environment and, particularly, of the state of São Paulo. In Phase III of the Rurban Project^d, the previous topics were deepened in the various

^c In this work the abbreviation PNAD (*Pesquisa Nacional por Amostra de Domicílios*) is used to remind the reader that the investigation was conducted in homes of Brazilian context.

^d The main conclusions of Phases I and II have been as follows: Phase 1: agricultural work has been systematically decreasing since the mid-80s, but the occupied rural population (rural PEA), contrary to expectations, was growing in the same period; Phase II: pointed out the importance of pluriactivity and non-agricultural income for rural families, especially the role of income transfers in the form of pensions and retirement to family farmers.

federal rural and agricultural units of some regions of the country. The studies proved the previous results, revealing that the pluriactive families tend to have higher schooling, a better standard of living, a lower proportion of the elderly and, consequently, a lower proportion of government transfers in the family income. With regard to income, field studies showed the positive impact of pluriactivity on family income, although this is still less than the impact of retirement. Even so, the pluriactivity of self-consumption in the composition of family income was not revealed high as foreseen in the study hypothesis.

In addition, the new activities were analyzed in more detail. Studies on rural industry were undertaken, revealing its growing importance, products, and marketing channels, among other topics. The importance of outsourcing in agricultural activities, in services, especially domestic service and rural tourism, was a subject that was investigated in many regions of the country. An unpublished study also analyzed the environmental impact of some of these new activities. A large contingent of workers residing in the countryside commutes from the rural area every day to work in the urban areas closest to the place where they live. In addition to this phenomenon, it was discovered that a large number of non-agricultural activities are developed in the rural area, such as the installation of small industries for the production of compotes, cheese, and other dairy products, among other activities related to housing, leisure, and provision of services⁹. Another movement that the researchers studied was the installation of condominiums in rural areas, which interferes with agricultural activities and urban planning itself. Although secular in the country, these activities recognized in the countryside did not have great economic importance. They were carried out in the yards of the houses, as personal hobbies or small intensive agricultural businesses (fish farming, horticulture, floriculture, «table» fruit growing, raising small animals, etc.), which became important work and income alternatives in the rural

⁹ As a more precise analysis for the case of the south of the country, many of these activities are not so «new». Many are the same as those previously produced as use values, such as *kuchen haus*, but which increasingly became commercialized. The historical particularity of regional consumption preferences, in which a large part are descendants of German and Italian immigrants, have stimulated this type of production, reinforcing the pluriactivity of this region, which does not contradict the existence of the more general characteristics of pluriactivity in Brazil, concerning the heterogeneity and diversity of its forms of manifestation.

environment in the most recent years. This was generically called *new rurality*[†].

The Rurban Project research produced many reports and publications with important information that contributed to the redefinition of public policies, which began to consider this new existing reality in the country's rural environment. Despite the existence of such publications with various important subsidies for public policies, there are still many research gaps. One example is that it has not been possible to carry out a complete characterization of agricultural and non-agricultural activities with the microdata from the PNADs / IBGE, mainly in regard to their location since the PNADs do not allow disaggregation levels similar to those of the census investigations.

In other words, the researchers did not have sufficiently detailed and disaggregated information about non-agricultural activities in rural areas with regard to Brazilian municipalities. Such information, when obtained, could be very useful for the verification and understanding, not only of the incidence of these activities but also for the offer of subsidies for future research on more specific topics. Kageyama⁽¹¹⁾ conducted a pioneering analysis that was based on data from the Population Census of the State of São Paulo, which resulted in the reinforcement of the conclusions of previous Rurban Project investigations and showed that, mostly, rural residents in this state had non-agricultural, low-skilled and precarious occupations. That is to say, the result of the study confirmed the conclusions obtained from the analysis of the data from the Continuous Household Survey (PNADs).

The investigations with the microdata from the PNADs have been very important to crystallize not only literature with new concepts but also to guide the public policies for Brazilian rurality. These advances do not free the investigations from constant reflections and revisions from the theoretical and/or empirical point of view. This article proposes, therefore, to proceed with the reflection of this review by analyzing the coherence that the microdata from PNAD has with the reality of rural families, considering that it is not census research, despite the rigor with which the sample is conducted. In other words, the aim of this article, of a methodological nature, is to verify the absolute and relative magnitude of families and pluriactivity in the South

[†] This is a concept whose scope goes beyond the dissemination of non-agricultural activities in rural areas, because it includes a notion of regional development based on the systemic integration of activities of the different sectors of the economy and involves the notion of development based on local resources⁽¹⁰⁾.

Region of Brazil through the comparative analysis of the results of the reprocessing of the microdata from the Census of Population⁽¹⁾ (in Brazil, *Demographic Census - DC*) of 2010 with those of the Continuous Household Survey⁽²⁾ (PNAD) of 2011. Additionally, it is intended to verify the validity/importance of the PNAD for the analysis of the characteristics and evolution of the different types of families living in rural and urban areas and the relevance of the use of these information sources to deepen on rural/urban relations at present.

Materials and Methods

Typology of families

The information that was analyzed in this work was organized with the objective of identifying the different types of families living in urban and rural areas of the south region of Brazil, according to the occupation of their members. Families were separated, firstly, according to their *position in their occupation*: employers, self-employed workers, employed workers and families of the non-employed.

The methodology for the construction of family types exempts pensioners, domestic workers, and relatives of domestic workers from the account. Therefore, the analysis units that were adopted are families in a broad sense, which include, beyond the nuclear family, the relatives and other individuals that live in the same address⁹.

The extended families, according to the position of their members in the occupation, were classified in the following way: 1) if one of the family members declared themselves to be an employer, the family was classified as an employer (*employing family*), regardless of the position in the occupation of the other members. It was considered that the employer position of one of its members is a good *proxy* of the family's social position; 2) in the absence of an employer, the family was classified as self-employed (*self-employed working families*) if one of the active members was declared as such, regardless of the position in the occupation of the other members; 3) if there was no employer or self-employed worker, the family was classified as *employee family* if at least one of its members stated to practice, as an employee, an agricultural or non-agricultural activity in the reference week of the PNAD; and 4) in the event that none of the members of the family

declared to be employed during that week, the family was considered as *unemployed family*.

For each position in the occupation referred to above, extended families were subdivided according to the area of activities in which their members were involved (agricultural, non-agricultural and pluriactive), according to the following criteria: 1) the *agricultural families* are the ones in which at least one of their members was involved in agricultural activities -and no other occupied in non-agricultural activities- as their main occupation in the reference research week (normally the last or the second last week of September of each year); 2) we considered the opposite as *non-agricultural families*, since at least one of its members practiced non-agricultural activities, and no other was occupied in agricultural activities; and 3) *pluriactive families* were classified as such when at least one of its members practiced some agricultural activity and at least another practiced a non-agricultural activity.

Databases

We worked with the microdata from two investigations of the Brazilian Institute of Geography and Statistics (IBGE by its Spanish acronym): one working with samples and the other one with census. The first one refers to the Continuous Household Survey⁽²⁾ (in Brazil it is called *Pesquisa Nacional por Amostra por Domicílios*, PNAD) of 2011. The second investigation refers to the Population Census (*Demographic Census, DC*)⁽¹⁾ of 2010.

As the main objective of this work is to compare the results of the PNAD with those of the 2010 DC, the right thing to do is to compare with a PNAD subsequent to the DC, since when the DC is conducted the IBGE updates the areas that can be considered rural and, consequently, urban. That is to say, throughout the periods between two DCs, the different municipal legislative bodies make changes in the respective urban perimeters, modifying the urban and rural municipal geographic/cartographic configurations. For this reason, at the time of conducting a DC the IBGE updates, in relation to the previous DC, its references of rural and urban areas^h. Due to these observations, it is more accurate, from the point of view of the analysis that is sought here, to compare the results of the Demographic Census (DC) or Population Census 2010

⁹ The grouping criteria used follow the methodology used in the studies developed in Phase II of the Rurban Project.

^h On this subject, refer to Graziano da Silva⁽¹²⁾.

with those of the PNAD of 2011, which has the same rural and urban referenceⁱ.

The information in the microdata from the 2011 PNAD was collected by the IBGE researchers, taking as a reference period for the data collection the *last week of the month of September* of 2011. Whereas the 2010 DC took the *week from July 25th to 31st*, 2010 as the reference period. So there are two different reference periods in the databases used in this article, a limitation that must be considered in our analysis.

It is important to highlight that the PNAD is a research with multiple purposes and of great scope in terms of territorial extension, so it is practically impossible to isolate the errors coming from the different sources that influence the final results, which may be caused by random fluctuations (sampling errors) or by non-probabilistic (non-sampling errors). According to IBGE⁽¹³⁾ «Sampling errors can occur in any of the phases of the investigation. Non-sampling errors are not influenced by the design of the sample and its measurement. When possible, it requires more complex and high-cost analyses, with greater delay in obtaining results than for sampling errors.»

According to Silva, Pessoa, Lila⁽¹⁴⁾, PNAD microdata is frequently used in descriptive analyses that involve calculating, comparing and interpreting estimates for totals, means, rates, proportions and ratios of the population. When the weights of the sampling units are considered in the calculations (provided in the microdata files), the estimates obtained for the corresponding population parameters are adequate. The incorporation of the weights in the estimation of descriptive measures can be done simply by using the weighting options available in the standard statistical packages and systems.

Concepts of rural and urban in the PNAD and in the Population Census

The classification of the residence situation in the Continuous Household Survey is urban or rural, according to the location area of the residence, and it is based on the legislation in force in the implementation of the Population Census of the year 2010. In an urban situation, the areas, urbanized or not, internal to the urban perimeter of the cities (municipal locations) or villas (district locations) or the

isolated urban areas, as defined by the Municipal Law in force as of July 31, 2010, were considered. For the city or town where there was no legislation to regulate these areas, an urban perimeter was established for census collection purposes, whose limits were approved by the local mayor. The rural situation covered the entire area outside these limits. This criterion was also used in the classification of the urban and rural population.

Results and Discussion

Table 1 presents, in a comparative way, the information extracted from the microdata from the 2010 Population Census (2010 DC) and the Continuous Household Survey (PNAD) of 2011 in relation to the type of families analyzed here.

When the relative values in Table 1 are determined, it is possible to notice the proximity between the compared results between the 2010 DC and the 2011 PNAD, practically for all types of families of the adopted typology. This observation is valid both for the two columns that present the relative shares of each family type in the general total of southern families, as well as for the other two columns that show the family distribution within each type of family according to the position in the occupation (employer, self-employed worker or family agriculture, employee).

In this sense, it can be observed in Table 1 that, from the point of view of the absolute numbers, there are differences that can be explained between the results obtained when the 2010 DC and the 2011 PNAD are analyzed. These differences in the results can be explained by 1) different reference periods for information collection of the 2010 DC and the 2011 PNAD, as shown in the methodology section; 2) the fact that the PNAD is a sample investigation and, therefore, produces estimates subject to errors. In this case, it can also be seen in the columns that record the relative/percentage values (Table 1 and following) that these differences are not expressive to the point of invalidating the PNAD because it is a sample; 3) for the simple fact that the year of the DC is 2010 and the year of the PNAD is 2011, the same could be observed between two PNADs, for example, 2011 and 2012.

It is evident in Table 1 that the most important difference to be highlighted in this comparison occurs in the group of employer families, probably due to the small number of existing families, whether in the case of the Population Census data as in the case of the Continuous Household

ⁱ Therefore, it would be incorrect to compare the results from the microdata from the 2010 DC with those of the 2009 PNAD, since the rural areas of both are incompatible, according to the reasons aforementioned.

Table 1. Absolute and percentage distribution of the types of extended families according to the residence site (rural *plus* urban): South, 2010 Population Census and 2011 PNAD (1000 families).

RESIDENCE / TYPE OF FAMILY	2010		2010		2011 PNAD		2010		2011 PNAD	
	Demographic Census		Demographic Census		Nr Fam. (x 1000)		% over the general total		% over the general total	
	Nr Fam. (x 1000)		% over the general total			% over the general total			% over the family type	% over the family type
RURAL + URBAN										
Employer	316	569	3,6	6,1			100,0			100,0
Agriculture	9	32	0,1	0,3			2,7			5,7
Pluriactive	16	36	0,2	0,4			5,1			6,3
Non-agriculture	292	501	3,3	5,4			92,2			88,0
Self-employed	2356	2424	26,5	26,1			100,0			100,0
Agriculture	399	465	4,5	5,0			16,9			19,2
Pluriactive	257	277	2,9	3,0			10,9			11,4
Non-agriculture	1700	1683	19,1	18,1			72,2			69,4
Employee	4780	4821	53,8	51,8			100,0			100,0
Agriculture	377	230	4,2	2,5			7,9			4,8
Pluriactive	219	162	2,5	1,7			4,6			3,4
Non-agriculture	4185	4429	47,1	47,6			87,5			91,9
Unemployed	1438	1492	16,2	16,0			--			--
TOTAL	8891	9305	100,0	100,0			--			--

Source: Brazilian Institute of Geography and Statistics (IBGE). Microdata from the PNAD¹¹ of 2011 and of the Population Census⁽¹⁰⁾ of 2010. Developed by the authors.

Table 2. Absolute and percentage distribution of the types of extended families according to the residence site (rural): South, 2010 Population Census and 2011 PNAD.

RESIDENCE / TYPE OF FAMILY	2010		2011 PNAD		2010		2011 PNAD	
	Demographic Census Nr Fam. (x 1000)	Nr Fam. (x 1000)	Demographic Census Nr Fam. (x 1000)	Nr Fam. (x 1000)	Demographic Census % over the general total	Demographic Census % over the family type	Demographic Census % over the general total	Demographic Census % over the family type
RURAL								
Employer	14	43	1,1	3,2	100,0	100,0	100,0	100,0
Agriculture	3	18	0,3	1,4	23,7	43,1	23,7	43,1
Pluriactive	4	6	0,3	0,4	25,6	13,7	25,6	13,7
Non-agriculture	7	18	0,5	1,4	50,7	43,2	50,7	43,2
Self-employed	575	663	45,1	49,7	100,0	100,0	100,0	100,0
Agriculture	340	405	26,7	30,4	59,1	61,1	30,4	61,1
Pluriactive	153	173	12,0	13,0	26,6	26,1	13,0	26,1
Non-agriculture	83	84	6,5	6,3	14,4	12,7	6,3	12,7
Employee	508	407	39,9	30,5	100,0	100,0	30,5	100,0
Agriculture	233	137	18,3	10,2	45,9	33,6	10,2	33,6
Pluriactive	70	55	5,5	4,1	13,8	13,6	4,1	13,6
Non-agriculture	205	215	16,1	16,1	40,3	52,8	16,1	52,8
Unemployed	178	223	14,0	16,7	--	--	16,7	--
TOTAL	1275	1335	100,0	100,0	100,0	100,0	100,0	100,0

Source: Brazilian Institute of Geography and Statistics (IBGE). Microdata from the PNAD of 2011⁽¹¹⁾ and of the Population Census⁽¹⁰⁾ of 2010. Developed by the authors.

Survey (PNAD)⁽¹⁰⁾. Even in this case, the difference is not expressive enough to consider that PNAD data cannot be used for analysis. In general terms, the information is quite similar and would allow researchers to use it, confirming what was already known for the case of the State of São Paulo in the publication of Kageyama¹, using data from the Population Census.

Table 2 records the information relevant to the different types of families living exclusively in the rural areas of the Southern region. Note that the comments made above on Table 1 are practically valid for the data compared in Table 2, and more explicitly for the pluriactive and non-agricultural families, in the three family groups (employers, self-employed or agricultural families, employees).

The slightly more significant difference between the 2011 PNAD data in relation to the 2010 DC, in the case of agricultural families, is probably due to the fact that the information was collected at different times. It is already known from the article published by Graziano da Silva and Del Grossi⁽¹⁵⁾ that the effect of the different reference periods of the PNADs (year and week) is numerically important, but the authors state that in the case of Brazil the magnitude of this error that was calculated was less than 0.5 % and did not affect significantly the results obtained for the agricultural PEA as a whole.

Excluding the participation of non-agricultural families, both in the general total and in the total of each family group (employers, self-employed or agricultural families, employees), Table 3 offers a comparative analysis between the *family agriculture* (families of self-employed workers) and *non-family agriculture* (families of employers and employees). Table 3 shows that both in the 2010 DC and in the 2011 PNAD the families of self-employed workers and those of employees were the vast majority of the universe of southern families linked to any agricultural activity (in the 2010 DC they corresponded to 98.1 % and in 2011 PNAD they reached 94.3 %). That is to say, the families of employers remain with relatively smaller participation in that universe.

But if we observe the distribution of family types according to the area of activity (agricultural family and pluriactive family) within each family group according to the position in the occupation (employing families, families of self-employed workers or family agriculture, employed families), we can verify that the family group with the largest

participation of *pluriactive* families is the group of families of *employers* (65.1 % in the 2010 DC and 52.95 % in the 2011 PNAD), followed by the other two groups that, although with a smaller relative participation of the pluriactive families, still exhibit an expressive participation in this family type, both in the 2010 DC and also in the 2011 PNAD. In addition, as we have observed in Tables 1 and 2, it is also observed in Table 3 that the percentage distributions show small differences between the 2010 DC and the 2011 PNAD data -differences that can be explained by the previously presented reasons-, suggesting the statistical confidence in the use of PNAD for studies of spatial distribution and of the evolution of the different family types from the adopted family typology, particularly, but not exclusively, of pluriactive families.

From the exclusive point of view of the families residing in the southern rural areas, Table 4 reaffirms the observations that have been made about the information recorded in Table 3, but basically with only one visible difference: that the pluriactivity of the employers families showed a significant divergence, that is, in the 2010 DC 52 % of the non-family agriculture of employers was pluriactive, while in the 2011 PNAD this participation fell to 24.1 %. As we have highlighted above, a part of this difference can be explained by the reasons stated at the beginning of this section.

However, it should be noted that this relative reduction is not due to an absolute reduction of the pluriactive families, from the 2010 DC to the 2011 PNAD. On the contrary, since the 2010 DC recorded *four* thousand southern rural families of pluriactive employers, while the 2011 PNAD recorded *six* thousand families of this same type. This reduction -from 52.0 % in the 2010 DC to 24.1 % in the 2011 PNAD- is more because of the absolute (and relative) growth of the southern families of agricultural employers.

This same type of observation can be made in Table 3, which collects the information from the total southern family agriculture and non-family agriculture (rural *plus* urban). Note that in this table, the case of the employing family agriculture, 2011 PNAD recorded expressively more agricultural and pluriactive families than the 2010 DC did. But just as was recorded in Table 4, the most significant difference between the 2011 PNAD and the 2010 DC is in the families of agricultural employers and not in the families of pluriactive employers, which makes the participation of the latter family type lower (in 2011 PNAD) compared to the first family type.

¹ There are practically no differences in Tables 1 and 2 of percentages over the general total in the non-agricultural employed category.

Table 3. Absolute and percentage distribution of the types of extended families according to the residence site (rural plus urban): South, 2010 Population Census and 2011 PNAD.

RESIDENCE / TYPE OF FAMILY	2010 Demographic Census		2011 PNAD		2010 Demographic Census		2011 PNAD	
	Nr Fam. (x 1000)	% over the general total	Nr Fam. (x 1000)	% over the general total	% over the family type	% over the family type	% over the family type	% over the family type
RURAL + URBAN								
Employer (Non-family agriculture)	25	1,9	68	5,7	100,0	100,0	100,0	100,0
Agriculture	9	0,7	32	2,7	34,9	47,1	47,1	47,1
Pluriactive	16	1,3	36	3,0	65,1	52,9	65,1	52,9
Self employed (Family Agriculture)	656	51,4	742	61,7	100,0	100,0	100,0	100,0
Agriculture	399	31,3	465	38,7	60,8	62,7	60,8	62,7
Pluriactive	257	20,1	277	23,0	39,2	37,3	39,2	37,3
Employee (Non-family agriculture)	596	46,7	392	32,6	100,0	100,0	100,0	100,0
Agriculture	377	29,5	230	19,1	63,3	58,6	63,3	58,6
Pluriactive	219	17,1	162	13,5	36,7	41,4	36,7	41,4
TOTAL	1276	100,0	1202	100,0	--	--	--	--

Source: Brazilian Institute of Geography and Statistics (IBGE). Microdata from the PNAD ⁽¹⁾ of 2011 and of the Population Census ⁽¹⁰⁾ of 2010. Developed by the authors.

Table 4. Absolute and percentage distribution of the types of extended families (family agriculture and non-family agriculture) according to the residence site (rural): South, 2010 Population Census and 2011 PNAD.

RESIDENCE / TYPE OF FAMILY	2010 Demographic Census		2011 PNAD		2010 Demographic Census		2011 PNAD	
	Nr Fam. (x 1000)	% over the general total	Nr Fam. (x 1000)	% over the general total	% over the family type	% over the family type	% over the family type	% over the family type
RURAL								
Employer (Non-family agriculture)	7	0,8	24	3,1	100,0	100,0	100,0	100,0
Agriculture	3	0,4	18	2,3	48,0	75,9	48,0	75,9
Pluriactive	4	0,4	6	0,7	52,0	24,1	52,0	24,1
Self employed (Family Agriculture)	493	61,4	579	72,8	100,0	100,0	100,0	100,0
Agriculture	340	42,3	405	51,0	69,0	70,1	69,0	70,1
Pluriactive	153	19,0	173	21,8	31,0	29,9	31,0	29,9
Employee (Non-family agriculture)	303	37,8	192	24,2	100,0	100,0	100,0	100,0
Agriculture	233	29,0	137	17,2	76,8	71,2	76,8	71,2
Pluriactive	70	8,8	55	6,9	23,2	28,8	23,2	28,8
TOTAL	803	100,0	795	100,0	--	--	--	--

Source: Brazilian Institute of Geography and Statistics (IBGE). Microdata from the PNAD ⁽¹⁾ of 2011 and of the Population Census ⁽¹⁰⁾ of 2010. Developed by the authors.

All information presented here show that the analysis of Escher and others⁽¹⁶⁾ may have been somewhat hasty: first because they claim - without any intention to verify as we are proposing in this article, to compare the PNAD with DC - that the PNAD, given that it is a sample investigation (which do not collect information in all municipalities as censuses do), *would be limited to studies on pluriactivity*; and, secondly, because they highlight the *strong presence of pluriactivity in the non-familiar agriculture* as information supposedly exclusive of the Agricultural Census of 2006.

Another observation to highlight is that, as we have shown it before, the participation of the non-family group of *employers* in the universe of southern families is very small, which justifies the emphasis the countless studies produced by the Rurban Project put on the pluriactivity of the *family agriculture* which, in the 2010 DC and the 2011 PNAD, gathered more than half of southern families, as well as also allowed highlights to pluriactivity of families of *employees* grouping almost the other half of the southern families (table 3).

Another comment that deserves highlight refers to what is considered *non-family agriculture*. In the work of Escher and others⁽¹⁶⁾ there is an explicit association with «*employers*» *agriculture* and no relation with the families of employees. In the work of these authors, the employees seem not to form families, let alone deserve, as a family group, the attention of the investigators. Obviously this it is not a problem of Escher and others⁽¹⁶⁾, but of the database they used, the Agricultural Census, that did not allow them to consider the group of the families of employees (and the pluriactivity within). In this sense, the greater importance of PNAD is evidenced, more than the 2006 Agricultural Census, for the analysis of pluriactivity, since PNAD includes both agricultural family (self-employed workers) and the two non-familiar agriculture groups (employers and employees). It is a more adequate database for the purpose of studying the pluriactivity as mentioned in the innumerable articles produced by the researchers of the Rurban Project.

On this, both the DC as the PNAD allow us to describe better what could be called non-familiar agriculture. Perhaps the greater difficulty in the use of the data from the Agricultural Census of 2006 for the analysis of the pluriactivity is precisely the subject of the analysis unit, that in the case of the Agricultural Census it is the «Agricultural establishment». In the case of the

Population Census, as well as the PNAD, the analysis unit is the «residence», which is a unit closer to the idea of family. This is clear when the Agricultural Census denominates the pluriactivity like «economic pluriactivity», according to what appears in the «technical notes» of the Agricultural Census that the IBGE published⁽¹⁷⁾.

Picture 5 registers the information relative to the absolute and percentage distribution only of the two contingents of agriculture *non-familiar* (employers and employees), enabling more precise observations on these two groups within what can be considered like non-familiar agriculture.

In Table 5, which includes only two groups of non-family agriculture and its general total, we can observe the overwhelming predominance of non-family agriculture of *employees*, in the 2010 DC (96.0 %) and in the 2011 PNAD (85.2 %). Although the PNAD works with samples, it is this research, and not the DC, that registers a greater share of the employing non-family agriculture (14.8 versus 4.0 % on the DC). Obviously, this difference can be explained with the reasons that have already been mentioned more of once. But what interests us, in this case, is to call the attention on the fact that the PNAD, unlike the DC, although it does not collect information of all the municipalities it is absolutely not less reliable than the DC. In this sense, the last two columns of Picture 5 reveal that the results extracted from the microdata from the PNAD are compatible not only with the results of the DC but also with the ones Escher and others⁽¹⁶⁾ found in the Agricultural Census^k.

As one might expect, considering only the non-family agriculture that resides in the southern rural areas (Table 6), the concentration of non-family agriculture used is even higher in the 2010 DC it was 97.8 % and in the 2011 PNAD was 88.8 % - compared to the same numbers in Table 5. The analysis of the last two columns of Table 6 was made when comments were made in Table 4.

^k A possible divergence between the absolute numbers in the Agricultural Census (AC) and in the PNAD, on the contingents (agricultural or pluriactive) of family agriculture as well as on non-family agriculture (supervisory), can also be explained by the fact that methodologically the PNAD adds up the different establishments that an address can have, while AC, on the other hand, separately enters each establishment⁽¹⁸⁾, which can, therefore, suggest that divergence for a greater number. That is, a unit, for example, of family agriculture that has more than one establishment will be entered, in the CA, more than once, while in PNAD it will be counted only once (in this case, joining all the establishments).

Table 5. Absolute and percentage distribution of the types of extended families (non-family agriculture) according to the residence site (rural plus urban): South, 2010 Population Census and 2011 PNAD.

RESIDENCE / TYPE OF FAMILY	2010 Demographic Census		2011 PNAD		2010 Demographic Census		2011 PNAD	
	Nr Fam. (x 1000)	% over the general total	Nr Fam. (x 1000)	% over the general total	% over the family type	% over the family type	% over the general total	% over the family type
RURAL + URBAN								
Employer (Non-family agriculture)	25	4,0	68	14,8	100,0	100,0	100,0	100,0
Agriculture	9	1,4	32	7,0	34,9	47,1		
Pluriactive	16	2,6	36	7,8	65,1	52,9		
Employee (Non-family agriculture)	596	96,0	392	85,2	100,0	100,0	100,0	100,0
Agriculture	377	60,8	230	49,9	63,3	58,6		
Pluriactive	219	35,3	162	35,3	36,7	41,4		
TOTAL	620	100,0	460	100,0	--	--		

Source: Brazilian Institute of Geography and Statistics (IBGE). Microdata from the PNAD⁽¹¹⁾ of 2011 and of the Population Census⁽¹⁰⁾ of 2010. Developed by the authors.

Table 6. Absolute and percentage distribution of the types of extended families (non-family agriculture) according to the residence site (rural): South, 2010 Population Census and 2011 PNAD.

RESIDENCE / TYPE OF FAMILY	2010 Demographic Census		2011 PNAD		2010 Demographic Census		2011 PNAD	
	Nr Fam. (x 1000)	% over the general total	Nr Fam. (x 1000)	% over the general total	% over the family type	% over the family type	% over the general total	% over the family type
RURAL								
Employer (Non-family agriculture)	7	2,2	24	11,2	100,0	100,0	100,0	100,0
Agriculture	3	1,0	18	8,5	48,0	75,9		
Pluriactive	4	1,1	6	2,7	52,0	24,1		
Employee (Non-family agriculture)	303	97,8	192	88,8	100,0	100,0	100,0	100,0
Agriculture	233	75,2	137	63,2	76,8	71,2		
Pluriactive	70	22,7	55	25,5	23,2	28,8		
TOTAL	310	100,0	216	100,0	--	--		

Source: Brazilian Institute of Geography and Statistics (IBGE). Microdata from the PNAD⁽¹¹⁾ of 2011 and of the Population Census⁽¹⁰⁾ of 2010. Developed by the authors.

Conclusions

The presented article has fundamentally a methodological nature, as stated in its objective. But it is possible to make some considerations so that this initial treatment of the data can have continuity through future investigations.

There is no doubt that since the publication of the 2006 Agricultural Census the new methodologies have allowed new research incursions in what refers to the studies on agricultural establishments, mainly because they show the existence of non-agricultural activities in their interior and/or the practice of non-agricultural activities outside the establishment by the heads and/or other members of the establishment.

But according to the specificity of the analysis presented here and contrary to what other authors have argued rather hastily, both the information from the microdata from the PNADs and those of the Population Census are extremely valid for the studies that have been developed within the Rurban Project, as well as in others. These two databases are totally valid for a thorough review of rural-urban relations in Brazil and, through their territorial divisions, to rediscuss the relevance of the biunivocal relationship between rural and agricultural and urban and non-agricultural, which means making the necessary break with rural-urban and agricultural-non-agricultural dichotomies.

The election of the Agricultural Census or the PNAD for the study of the pluriactivity must not have the statistical significance of one of these databases as a criterion since it is understood that it has been possible to show in this analyses that the PNAD is statistically compatible with the Population Census and the Agricultural Census. Therefore, choosing criteria for one or the other database must meet the objective of the investigation. That is, for the purposes of the research carried out by the Rurban Project, the PNAD was and remains the most appropriate; as well as, on the other hand, for studies of another nature, such as investigating the types of production and marketing of the different pluriactive establishments, the Agricultural Census is undoubtedly the most recommended one.

It is repeated, finally, that both in the Population Census and in the PNAD the unit of analysis for the study of the *pluriactivity* is the «residence», which is a unit closer to the idea of family. However, as regards to the information on the production within the establishments of the pluriactive families (or strictly agricultural), we agree that the

Agricultural Census is more suitable for a study of such character.

Author's contribution

AN C.: Preparation of files, processing and coherence of the research data, statistical analysis through the formulation of tables, initial analysis of data. Data analysis and discussion in view of the bibliographical references. Processing the corrections requested by the reviewers.

R J.: Discussion of the initial and final data analysis. Analysis and drafting of the article in view of the bibliographical references. Processing the corrections requested by the reviewers.

dS M.: Drafting of the article, particularly the data analysis part and the bibliographical review part. Processing of the introductory section and conclusions. Supporting the article's translation process from Portuguese to Spanish. Processing the corrections requested by the reviewers.

P R.: Analysis and discussion of the research data, article's drafting. Processing the corrections requested by the reviewers.

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