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(Results from the 2000 Census of Population and Housing)**  
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# **Profile of Agrarian Reform Beneficiaries through CARP (Results from the 2000 Census of Population and Housing)**

by

Mercedita E. Tia and Teodoro M. Orteza <sup>1</sup>

## **ABSTRACT**

The Philippines is an agricultural country with a land area of 30 million hectares, 47 percent of which are agricultural areas. Agriculture is generally characterized by simple farms which are owned and managed by single families ranging from subsistence to commercial production. Among the major economic sectors in the country, the growth in agriculture, fishery and forestry, showed an erratic trend, from 3.09 percent in 1997, a sudden drop was observed posting a negative growth rate in 1998 at (-6.43) percent and then made a leap to 5.95 percent in 1999, and again a downturn in 2000 at 3.42 percent. In terms of employment, the Labor Force Survey (LFS) conducted by the National Statistics Office (NSO) showed that the share of agriculture, fishery and forestry employment to the total employment continued to decline. In 1997, the employment in this sector was 41.3 percent, but in 2000 the biggest drop was observed at 36.2 percent. As to the total contribution to the economy, the share of agriculture, fishery and forestry to the Gross Domestic Product (GDP) showed a generally decreasing trend.

Through the years, plans and policies on food security and poverty alleviation are among the top priorities of the government. Food security measures are directed towards increasing productivity in the agricultural areas. Some of these programs are the enactment of Republic Act No. 6655 on June 10, 1988, otherwise known as the Comprehensive Agrarian Reform Law, which instituted the Comprehensive Agrarian Reform Program. The law focused on the welfare of the landless farmers and farm workers, who are willing to take over the ownership of the land and make it productive. Also, Republic Act 8435, otherwise known as the Agriculture and Fisheries Modernization Act (AFMA), was enacted on December 22, 1997, which aims to strengthen the agriculture and fishery sectors through modernization, greater participation of small-holders, private sector and people empowerment.

In spite of the realization of these various agrarian reform measures to hasten food production toward self-sufficiency, still the agriculture sector is not fully harnessed as shown by the erratic trends in growth, high poverty incidence in rural areas where mostly are farmers, and decreasing share on employment. The welfare of those engaged in agriculture is still yet to be assessed to determine if the programs of the government have some impacts on the improvement of their condition. In particular, this can be partly viewed given some changes in the socio-economic characteristics of those Agrarian Reform Beneficiaries (ARBs). However, due to unavailability of previous data, only the current situation of the ARBs can be assessed. Nevertheless, the current situation would serve as baseline information and could serve as bases to improve and strengthen the current programs of the government. This paper will utilize the results of 2000 Census of Population and Housing conducted by the NSO in May 2000. Specifically, it will present the socio-economic characteristics of households with agricultural land acquired through CARP or those considered ARBs.

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## I. INTRODUCTION

Agriculture has been the dominant component of the Philippine economy absorbing almost one-half of the labor force while supplying basic foods like rice, corn, coconut, sugar, and others. It provides income and livelihood to millions of farmers and their dependents mostly found in rural countryside. Ironically, agriculture and poverty are linked with each other. This has been manifested by the proportion of employed persons in agriculture against the incidence of poor population across regions. Except NCR, Regions III and IV, all regions have at least one-fourth of the population engaged in agriculture and had at least one-third of the population considered poor.

In spite of its contribution to the country, this is one sector whose potential is not fully harnessed. Agricultural activities are not properly translated to economic growth as shown by the erratic trend in economic growth rate, decreasing contribution to the economy, and reduction in the share to total employment. From 3.09 percent in 1997, a sudden drop in economic growth rate was observed in 1998 posting a negative growth rate of (-6.43) percent and then made a leap to 5.95 percent in 1999, and again a downturn in 2000 at 3.42 percent. The share of agriculture, fishery and forestry to the Gross Domestic Product (GDP) showed a generally decreasing trend, from 21.8 percent in 1980 to 16.5 percent in 2000. The same is true in employment where the Labor Force Survey (LFS) conducted by the National Statistics Office (NSO) showed that the share of agriculture, fishery and forestry employment to the total employment continued to decline. In April 1997, the employment in this sector was 41.3 percent of the total workforce, but dropped to 36.2 percent in April 2000.

The government, however, is trying its best to improve and modernize this sector. It instituted a program that distributes the land to the landless, a commitment that spans several administrations -- from the confiscation of friar lands by Gen. Emilio Aguinaldo to the institution of systematic land registration and public land disposition by the Americans; from the social justice program of Pres. Manuel L. Quezon and the land for the landless program of Pres. Ramon Magsaysay to the land reform pilot projects of Pres. Diosdado Macapagal. Then, following the imposition of martial law on September 21, 1972 by Pres. Ferdinand Marcos, farmers in rice and corn lands became beneficiaries of the Operation Land Transfer and Operation Leasehold.

The agrarian reform implementation accelerated upon the assumption into office of Pres. Corazon C. Aquino on February 25, 1986. One of the programs was the enactment of Republic Act No. 6657 on June 10, 1988, otherwise known as the Comprehensive Agrarian Reform Law, which instituted the Comprehensive Agrarian Reform Program (CARP). This law focused on the welfare of the landless farmers and farmworkers who are willing to take over the ownership of the land and make it productive. After a year of the Estrada administration, Republic Act 8435, otherwise known as the Agriculture and Fisheries Modernization Act (AFMA), was enacted on December 22, 1997. The act aims to strengthen the agriculture and fishery sectors through modernization, greater participation of small-holders, private sector, and people empowerment.

From 1972 to December 2003, the Department of Agrarian Reform (DAR)

distributed about 3.5 million hectares or 81 percent of the 4.3 million hectare DAR-CARP scope. This made nearly two million farmers holders of land titles through emancipation patents and certificates of land ownership awards.

In the midst of all these various agrarian reform measures to hasten food production toward self-sufficiency and poverty alleviation, the welfare of those engaged in agriculture is still yet to be assessed as the improvement of this sector does not stop in the provision of land alone but also knowing if the program uplifts the plight of the beneficiaries. To address this concern, the paper will present the socio-economic characteristics of Agrarian Reform Beneficiaries (ARBs). It would be better to include the socio-economic characteristics of the beneficiaries over-time to determine if there are improvements in the welfare of the beneficiaries. However, due to unavailability of previous data, only the current situation of the ARBs can be assessed. Nevertheless, the current situation would serve as baseline information.

This paper utilizes the results of the 2000 Census of Population and Housing (Census 2000) conducted in May 2000 by the National Statistics Office (NSO). Specifically, it will present the socio-economic characteristics of households with agricultural land acquired through CARP, or those considered as ARBs.

## II. DATA AND METHODS

### A. DATA

From the results of Census 2000, data set on the information of households with CARP beneficiaries was created. An indicator of “1” was placed if the household had an agricultural land acquired through CARP and zero otherwise. Since the format of the Census 2000 questionnaire cannot identify the actual beneficiary among household members, the paper used the demographic characteristics of the household head. It is assumed that the household heads were the beneficiaries.

### B. METHODS

Aside from the analysis on the percentage distribution of the data regarding CARP beneficiaries by selected variables, a binary regression model was developed to identify the characteristics of the households with agricultural land acquired through CARP. The method that would best answer this objective is logistic regression as the interest has two outcomes, “1” for the households with agricultural land acquired through CARP and “0”, otherwise.

Variables that are likely to determine the characteristics of the households with agricultural land acquired through CARP were included in the model. The following are the hypotheses for the inclusion of the variables:

VARIABLE	HYPOTHESIS
Reg1 (1 – Region1; 0 otherwise) Reg2 (1 – Region2; 0 otherwise) Reg3 (1 – Region3; 0 otherwise) Reg4 (1 – Region4; 0 otherwise) Reg5 (1 – Region5; 0 otherwise)	Acquisition of land varies by region, depending on the extent of agricultural areas in the region.

VARIABLE	HYPOTHESIS
Reg6 (1 – Region6; 0 otherwise) Reg7 (1 – Region7; 0 otherwise) Reg8 (1 – Region8; 0 otherwise) Reg9 (1 – Region9; 0 otherwise) Reg10 (1 – Region10; 0 otherwise) Reg11 (1 – Region11; 0 otherwise) Reg12 (1 – Region12; 0 otherwise) NCR (1 – NCR; 0 otherwise) CAR (1 – CAR; 0 otherwise) ARMM (1 – ARMM; 0 otherwise) Caraga (1 – Caraga; 0 otherwise)	
Age	As the age of the household head increases, the chance of being selected as CARP beneficiary increases. This is because their farming skills are developed through the years.
Household Size	The bigger the household size is, the higher the financial needs of the family. Thus, every opportunity shall be grabbed to augment family income. Moreover, the more household members, the more can be utilized to help in the farm.
Literacy (1 – literate; 0 otherwise)	If the household head is literate, information campaign on CARP is maximized.
Married (1 – Married; 0 otherwise)	One of the basic qualifications of a beneficiary is his willingness and attitude to make the land productive. Hence, if he is married, he will have a sense of financial responsibility to his family and would tend to apply as CARP beneficiary to make his occupation stable.
Number of Years in School 1 – no grade completed/preschool 2 – grade 1 3 – grade 2 ..... 23 - with post baccalaureate courses	It is hypothesized that the higher the educational attainment of the household head is, the lesser the chance of being a CARP beneficiary. This is because those who finished a higher level of education would tend to look for other job that would fit his/her education.
Usual Occupation (1- Farmer, Forestry Workers and Fishermen; 0 otherwise)	Another qualification of a beneficiary is his ability to cultivate and make the land as productive as possible. The program gives priority to agricultural lessor and share tenants, followed by regular, seasonal, and other farm workers.
Fuel for Lighting (1 – not using electricity or LPG; 0 otherwise)	Presence/absence of these facilities, appliances, equipment, etc. is an indication of economic status of the household. Absence indicates low economic status.
Toilet Facility (1 – absence of water-sealed toilet facility; 0 otherwise)	
Radio (1- absence of radio; 0 otherwise)	
TV (1- absence of TV; 0 otherwise)	
Refrigerator (1- absence of refrigerator; 0 otherwise)	
Video Cassette (1- absence of video cassette; 0 otherwise)	
Phone (1 - absence of telephone; 0 otherwise)	
Washing Machine (1 - absence of washing machine; 0 otherwise)	
Motor Vehicle (1- absence of motor vehicle; 0 otherwise)	
Materials Used for the Roofs (1 – if the roof is made of cogon/nipa/anahaw or makeshift/salvaged/improvised materials; 0 otherwise)	
Materials Used for the Walls (1 – if the wall is made of bamboo/sawali/ cogon/nipa or makeshift/salvaged/ improvised materials; 0 otherwise)	
Floor Area (1 – if floor area is below 30 square meters; 0 otherwise)	

## LOGISTIC MODEL

The probability that a household is a CARP beneficiary or an ARB given that the household is residing in a particular region, the household head is in a certain age, literate, married, had attended a certain number of years in school, a farmer, etc. is:

$$\begin{aligned} & [\text{Pr}(y=1 | \text{Region1} \dots \text{Caraga, age, household size, literate, married, } \dots \text{ floor area below 30)} \\ & = g(\beta_0 + \beta_1 \text{Region1} + \dots + \beta_{16} \text{Caraga} + \beta_{17} \text{age} + \dots + \beta_{35} \text{floor area below 30}) \\ & = \frac{\exp(\beta_0 + \beta_1 \text{Region1} + \dots + \beta_{16} \text{Caraga} + \beta_{17} \text{age} + \dots + \beta_{35} \text{floor area below 30})}{1 + \exp(\beta_0 + \beta_1 \text{Region1} + \dots + \beta_{16} \text{Caraga} + \beta_{17} \text{age} + \dots + \beta_{35} \text{floor area below 30})} \end{aligned}$$

where:  $y = 1$ , denotes that the household is a CARP beneficiary

or

Logit  $[\text{Pr}(y=1 | \text{Region1}, \dots \text{Caraga, age, household size, literate, married}, \dots, \text{floor area below 30})]$

## ODDS RATIO

Odds ratios are computed to determine the effect to the dependent variable of the change in a particular variable, controlling the rest of the independent variables constant. For example, the odds ratio for age is:

$$\text{Exp}(\beta_{17}) = \frac{[\text{odds}(\text{age} + 1, \text{Region} = j, \dots, \text{household size} = j, \dots, \text{literate} = 1, \dots, \text{floor Area} = 1)]}{[\text{odds}(\text{age}, \text{Region} = j, \dots, \text{household size} = j, \dots, \text{literate} = 1, \dots, \text{floor Area} = 1)]}$$

In the example, the odds ratio for age can be interpreted as the effect to the dependent variable of adding one to age controlling for the rest of the independent variables as constant.

## III. RESULTS AND DISCUSSION

### A. CHARACTERISTICS OF CARP BENEFICIARIES

**There were 459,489 households with agricultural land acquired through CARP or were ARBs**

Based on Census 2000, the number of households with agricultural land acquired through CARP or were ARBs was placed at 459,489 households. This is equivalent to 3.0 percent of the total households in the country or 10.1 percent of the 4.5 million households with at least one type of land owned. Other types of land owned by households were: other agricultural lands accounting for 2.9 million households (19.2 percent), other residential lands with 2.1 million households (13.9 percent), and other types of lands with 353 thousand households (2.3 percent).

Of the households with agricultural land acquired through CARP, 30.2

percent also owned other residential lands, 34.5 percent with other agricultural lands, and 12.5 percent with other lands.

### **Central Luzon had the most number of ARBs**

Distribution of ARBs by region ranges from eight thousand households in CAR (1.8 percent of the total CARP beneficiaries) to 70 thousand households (15.1 percent) in Region III. A number of households with ARBs were also found in Region IV with 54 thousand households, Region VI with 46 thousand households, and Region XI with 38 thousand households. Two of these regions, namely, Region IV and Region XI also had the biggest land area (46,983 square kilometers and 31,607 square kilometers, respectively).

The percentage distribution of CARP beneficiaries to the total households by region showed that five regions in the country registered a lower proportion of ARBs than the national level (3.0 percent). These regions are NCR (1.1 percent), Region VII (2.2 percent), Region IV (2.2 percent), Region VIII (2.6 percent), and Region I (2.9 percent). On the other hand, Region II had the highest percentage at 6.2 percent.

### **One in every four heads of households with CARP beneficiaries were in the 35 to 44 year age group**

CARP beneficiaries or ARBs were generally older (median age is 47 years) than non-CARP beneficiaries (median age is 43 years).

By age group, the highest proportion was observed in the 40 to 44 year age group (12.8 percent) followed by the 35 to 39 year age group (12.7 percent). The same distribution was also noted for those with other residential lands (13.2 percent) and agricultural lands (12.2 percent) where the highest proportion was in the 40 to 44 year age group while in the 35 to 39 year age group for those with other lands (13.0 percent).

When compared to the ages of non-CARP beneficiaries, the highest proportion was observed in the age group 35 to 39 years (14.1 percent) followed by the 30 to 34 year age group (13.3 percent).

### **Four out of five heads of households with CARP beneficiaries were married**

About 80.5 percent of the heads of households with CARP beneficiaries were married. An almost equal percent was also noted for heads of households with other residential (78.7 percent), agricultural (78.0 percent), and other lands (79.2 percent).

### **Nine out of ten were literate**

Heads of households with CARP beneficiaries had a literacy rate of 88.9 percent, lower than the literacy rate (90.8 percent) of heads of households without CARP beneficiaries. These literacy rates, however, are lower when compared to the 92.3 percent literacy rate of all persons 10 years old and over.

Literacy rate of heads of households with other residential lands (92.3 percent) is the same with the national literacy rate but lower for those with agricultural lands (87.6 percent) and other lands (86.5 percent).

### **One-fifth of the ARBs were Tagalog**

Close to 20 percent of the ARBs classified themselves as Tagalog. This is expected since Regions III and IV recorded the highest number of CARP beneficiaries.

This distribution was also observed among those with other residential lands (23.8 percent) and other lands (19.9 percent). On the other hand, for those with other agricultural lands the predominant group is Ilocano (15.1 percent).

Among indigenous peoples, 20.1 percent owned other lands, 15.8 percent owned other agricultural lands, and 11.0 percent owned other residential lands. Only 9.6 percent of them had agricultural land acquired through CARP.

### **Half of them had attended/finished elementary**

Half of the heads of households with CARP beneficiaries had attended/finished elementary education (50.8 percent), about 22.4 percent had attended/graduated from high school, and 5.2 percent were academic degree holders. Among households without CARP beneficiaries, a lower proportion of household heads had attended/ finished elementary education (42.1 percent). Consequently, a larger proportion of them had attended/finished high school (28.1 percent), had attended college (10.4 percent), and were academic degree holders (5.8 percent).

The same trend was observed among heads of households with other residential lands, agricultural lands, and other lands, that is, most of them had attended/finished elementary.

### **Seven out of ten heads of households with ARBs were farmers, forestry workers and fishermen**

About 82.8 percent of heads of households with CARP beneficiaries were economically active. Among them, 71.1 percent were working as farmers, forestry workers and fishermen. Others were laborers and unskilled workers (7.1 percent), plant and machine operators and assemblers (5.1 percent), and traders and related workers (4.5 percent). It should be noted that while 28.9 percent of the heads were not engaged in agriculture, fishery and forestry, other household members may be the ones engaged in this sector.

Close to one-half of heads of households with other residential lands (47.9 percent) were farmers, forestry workers and fishermen, while more than one-half among those with agricultural lands (69.9 percent) and other lands (61.0 percent).

## **B. CHARACTERISTICS OF HOUSEHOLDS WITH CARP BENEFICIARIES**

### **Households prefer electricity for lighting and wood for cooking**

Most households with and without ARBs used electricity for lighting, only that a higher proportion was observed among households without ARBs (60.2 percent vs 64.1 percent). On the other hand, the proportion of households with ARBs was higher for those households using kerosene (36.4 percent vs 33.0 percent) and Liquefied Petroleum Gas (LPG) (1.5 percent vs 1.3 percent) for lighting.

Wood utilization for cooking was higher among households with ARBs than without ARBs. One-half of the households with ARBs used wood for cooking (50.2 percent) while less than one-half (46.7 percent) for non-ARBs. On the contrary, LPG was used by 40.4 percent of households without ARBs while 37 percent of the households with ARBs.

### **Households with and without ARBs had a high proportion of ownership of radio/cassette and television set**

Among households with ARBs, the proportion of ownership of radio/cassette (81.7 percent) and television (50.6 percent) was relatively high. The same was true for non-ARBs (75.0 percent and 52.8 percent, respectively). About 18.5 percent of the households with ARBs had motorized vehicle and only 12.0 percent for non-ARBs. A higher proportion was noted for ownership of motor vehicle among ARBs as vehicles are needed in farm work.

### **Housing units of households with and without ARBs were made of strong materials**

Two out of three housing units of ARBs (67.6 percent) were made of galvanized iron/aluminum for the roofs while one out of four was made of cogon/nipa/anahaw (24.1 percent). The rest live in houses with roofs made of half galvanized iron and half concrete (4.1 percent), wood (1.9 percent), and concrete/tile/clay tile (1.1 percent). This pattern was also observed in the housing units of non-ARBs but with different proportion -- a higher proportion in galvanized iron (69.2 percent) but a lower proportion in cogon/nipa/anahaw (23.0 percent) and half galvanized and half concrete (3.5 percent).

As to the construction materials used for outer walls, one out of three housing units of ARBs (32.0 percent) and non-ARBs (33.0 percent) had walls made of concrete/brick/stone. Other housing units of ARBs and non-ARBs had walls made of bamboo/sawali/cogon/nipa (25.1 percent and 21.4 percent, respectively) and wood (21.6 percent and 24.7 percent, respectively).

### **Majority of the housing units of ARBs and non-ARBs needed minor repair or no repair at all**

Seven in every ten housing units of ARBs (69.4 percent) needed minor

repair or no repair at all. This is lower compared to the non-ARBs (72.2 percent). On the other hand, the proportions for houses that needed major repair (17.7 percent), unfinished construction (6.2 percent), under construction (2.3 percent), and under renovation (2.0 percent) are relatively higher among ARBs than among non-ARBs.

### **Housing units of ARBs had smaller floor area**

The housing units of ARBs were generally smaller where the median floor area recorded was 24.6 square meters against the 26.3 square meter floor area for non-ARBs.

Nearly 60 percent of the housing units of ARBs had a floor area less than 30 square meters while 56.4 percent for non-ARBs. Also, about 10 thousand housing units of ARBs (2.2 percent) had a floor area of 200 square meters and over.

## **C. LOGISTIC REGRESSION**

### **Selection of Significant Variables**

Logistic regression was used to determine which variables can best describe the households with CARP beneficiary or ARB. Those with p-value less than 0.05 are considered significantly related to the dependent variable.

Of the 35 variables included in the model, 17 variables were found to be significantly related. The final model is given by:

$$\begin{aligned} \text{Logit P} = & - 4.12189 + 0.6072722*\text{reg2} + 0.5966107*\text{reg3} + 0.366157*\text{reg6} \\ & + 0.2818705*\text{reg12} + 0.0129024*\text{age} + 0.0226748*\text{hhsz} \\ & + 0.0697313*\text{lit\_rec} + 1.214215*\text{occu\_rec} + 0.265662*\text{lght\_rec} \\ & + 0.0292623*\text{toit\_rec} - 0.3801952*\text{rdo\_rec} - 0.0776933*\text{tv\_rec} \\ & - 0.2383654*\text{caset\_re} - 0.053605*\text{pone\_rec} - 0.5846214*\text{mtrv\_rec} \\ & - 0.0401251*\text{rof\_rec} - 0.0034833*\text{edu\_rec} \end{aligned}$$

The model implies that the residence of the beneficiaries matter. Specifically, residents of Regions II, III, VI, and XII are most likely to be CARP beneficiaries.

Increasing age by one and controlling for other variables constant would increase Logit P by 0.0129024. This means that age is important for being a CARP beneficiary as age is linked with experience. Experience and ability to cultivate are among the necessary qualifications for a CARP beneficiary.

Similarly, the effect of not using electricity and LPG for lighting, controlling for other variables constant, is to increase Logit P by 0.265662, and so on.

An example for the model is: a household head who is 40 years old, residing in Region II, with a household size of five, literate, high school graduate, a farmer, using kerosene as fuel for lighting, with no water-sealed toilet facility,

with radio and motor vehicle, and with cogon/nipa/anahaw as the materials of the roof. The probability that the household would be a CARP beneficiary is;

$$\text{Logit } P = -1.761351$$

$$P = \frac{e^{-1.761351}}{1 + e^{-1.761351}} \quad \text{where: } e^{-1.761351} = 0.1718$$

$$P = 0.1466$$

### Interpretation of the Odds Ratio

Odds ratios were computed for the different variables in the model.

CARP	Odds Ratio	Robust Std. Err.	P>z	[95% Conf. Interval]	
reg2	1.835418	0.0353155	0.0000	1.76749	1.905957
reg3	1.815954	0.0258953	0.0000	1.765902	1.867423
reg6	1.442182	0.0238511	0.0000	1.396184	1.489695
reg12	1.325607	0.0311217	0.0000	1.265992	1.38803
age	1.012986	0.0003517	0.0000	1.012297	1.013676
hhsz	1.022934	0.0020848	0.0000	1.018856	1.027028
lit_rec	1.07222	0.0184735	0.0000	1.036617	1.109046
occu_rec	3.367651	0.0407012	0.0000	3.288815	3.448376
lght_rec	1.304294	0.019552	0.0000	1.26653	1.343184
toit_rec	1.029695	0.0137072	0.0280	1.003176	1.056914
rdo_rec	0.683728	0.0094034	0.0000	0.6655439	0.7024089
tv_rec	0.9252482	0.014349	0.0000	0.8975478	0.9538035
caset_re	0.7879147	0.0119383	0.0000	0.76486	0.8116643
pone_rec	0.9478064	0.0166692	0.0020	0.915692	0.9810471
mtrv_rec	0.5573168	0.0083236	0.0000	0.5412393	0.5738719
rof_rec	0.9606692	0.0125828	0.0020	0.9363213	0.9856503
edu_rec	0.9965227	0.0011101	0.0020	0.9943494	0.9987008

Comparing different ages to determine the effect as the age difference increases, say by three years is:

$$\beta_{\text{age}} = 0.0129024 \quad \beta_{\text{age} = x, x+3} = 0.0129024 \times 3 = 0.0387$$

$$\text{Then the odds is : } e^{0.0387} = 1.0395$$

Hence, with an increase of three years, the odds that a household head will become a CARP beneficiary is almost four percent higher than those younger by three years.

This pattern was also observed in the household size. That is:

$$\beta_{\text{hhsz}} = 0.0226748 \quad \beta_{\text{hhsz} = x, x+3} = 0.0226748 \times 3 = 0.0680$$

$$\text{Then the odds is : } e^{0.0680} = 1.0703$$

With an increase of three members in the household, the odds that a household head will be a CARP beneficiary is seven percent higher than those households with household members lower by three.

reg2	for households located in Region II, the odds for being CARP beneficiaries is 84 percent higher than those located in other regions.
reg3	for households located in Region III, the odds for being CARP beneficiaries is 82 percent higher than those located in other regions.
reg6	for households located in Region VI, the odds for being CARP beneficiaries is 44 percent higher than those located in other regions.
reg12	for households located in Region XII, the odds for being CARP beneficiaries is 33 percent higher than those located in other regions.
lit_rec	for literate household heads, the odds for being CARP beneficiaries is seven percent higher than those illiterate household heads.
Occu_rec	farmers have 3.37 times the odds of being CARP beneficiaries than those not working on a farm.
lght_rec	for households not using electricity and LPG for lighting, the odds for being CARP beneficiaries is 30 percent higher than those households using electricity and LPG.
toit_rec	for households whose toilet facility is not water-sealed, the odds for being CARP beneficiaries is 3 percent higher than those households with water-sealed toilet facility.
rdo_rec	for households without radio, the odds for being CARP beneficiaries is 32 percent lower than those households with radio.
tv_rec	for households without television, the odds for being CARP beneficiaries is 7 percent lower than those households with television.
caset_re	for households without video cassette, the odds for being CARP beneficiaries is 21 percent lower than those households with video cassette.
pone_rec	for households without telephone/cellular phone, the odds for being CARP beneficiaries is 5 percent lower than those households with telephone/cellular phone.
mtrv_rec	for households without motorized vehicle, the odds for being CARP beneficiaries is 44 percent lower than those households with motorized vehicle.
rof_rec	for households in which the construction materials of the roof of the housing units is made of cogon/nipa/anhaw or makeshift/salvaged improvised materials, the odds for being CARP beneficiaries is 4 percent lower than those with roof materials other than the enumerated.
edu_rec	A one year difference in the number of years of schooling does not change the odds ratio much. If the year difference, say, is five years then the odds for being CARP beneficiaries is two percent less as compared to those with fewer number of years of schooling.

#### IV. SUMMARY AND CONCLUSION

The number of households with agricultural land acquired through CARP or ARBs was placed at 459,489 households or 3.0 percent of the total households based on Census 2000. About 15 percent of them came from Region III and 12 percent from Region IV.

Aside from having a land acquired through CARP, 30.2 percent of them also owned other residential lands, 34.5 percent had other agricultural lands, and 12.5 percent had other lands.

The median age of household heads with CARP beneficiaries was 47 years while 43 years for non-CARP beneficiaries. Heads of households with other residential lands, agricultural lands, and other lands were in late 30's to early 40's.

Majority of the CARP beneficiaries were married, literate, and had attended/graduated from elementary. Among indigenous peoples, 20.1 percent owned other lands, 15.8 percent owned other agricultural lands, 11.0 percent owned other residential lands, and only 9.6 percent owned agricultural land

acquired through CARP.

Four out of five heads of households with CARP beneficiaries were economically active. About 71.1 percent of them were working as farmers, forestry workers and fishermen.

There was a higher proportion of households with ARBs using kerosene for lighting and wood for cooking than those households without ARBs.

In terms of ownership of appliances, both groups have a high proportion of ownership for radio and television set with the ARBs showing a higher proportion for radio and non-ARBs for television set.

In addition, households with ARBs are generally living in smaller housing units made of strong materials for roofs and walls, although one-fourth of them are residing also in housing units made of cogon/nipa/anahaw/bamboo.

Logistic regression further showed that residents of Regions II, III, VI, and XII are more likely to be ARBs. Older ages are also more likely to be ARBs since they are more experienced. Other characteristics of CARP beneficiaries are literate, farmers, with bigger household size, not using electricity and LPG for lighting, toilet facility is not water-sealed, with radio, television set, motorized vehicle, video cassette, telephone, and living in housing units with roofs made of strong materials (not cogon/nipa/anahaw and makeshift/salvaged materials).

If presence of household amenities such as radio/cassette, television set, telephone, motorized vehicle, etc., and construction materials of the roof will be the bases for economic status of the household, it appears that CARP beneficiaries are economically better off. This means that they can make the land productive to improve their lives. Ironically, this status is not reflected on the type of toilet facility and presence of electricity in the households. These two, however, indicate more of the characteristics of the barangay or municipality residence of CARP beneficiaries where water and electricity may not be available in the area.

Results of the study imply that distribution of lands to farmers should be continued to give farmers security of the land they till, promote social equity and provide farmers economic viability and productivity. On the other hand, for those who are already ARBs the support should not be limited to the distribution of lands. But rather, government and private sectors should join efforts so that they would be protected against abusive middlemen. Likewise, there should be construction of farm to market roads, post harvest facilities, electrification, provision of potable water supply and credit assistance. Technological innovation and the transfer of technical and management skills should likewise be included in the agenda of improving the agriculture sector. Such measures would not only improve the lives of the beneficiaries and farmers but would consequently move our country towards the attainment of food sufficiency and economic growth.

Table 1. Selected Characteristics of Household Heads by Land Ownership: Census 2000

Selected Characteristics	Households with at Least 1 Land Owned	Agriculture Lands acquired thru CARP	Percent	Residential Lands	Percent	Agricultural Lands	Percent	Other Lands	Percent
PHILIPPINES	4,547,849	459,489	10.1	2,118,185	46.6	2,932,872	64.5	353,443	7.8
<b>REGION</b>									
NCR		24,478	5.3	264,629	12.5	136,951	4.7	34,603	9.8
CAR		8,059	1.8	76,282	3.6	112,930	3.9	21,097	6.0
REGION I - Ilocos		24,482	5.3	135,985	6.4	210,893	7.2	20,937	5.9
REGION II - Cagayan Valley		34,558	7.5	125,183	5.9	198,536	6.8	15,195	4.3
REGION III - Central Luzon		69,605	15.1	183,151	8.6	188,400	6.4	23,554	6.7
REGION IV - Southern Tagalog		54,147	11.8	313,380	14.8	310,404	10.6	46,137	13.1
REGION V - Bicol		28,622	6.2	102,457	4.8	169,172	5.8	12,694	3.6
REGION VI - Western Visayas		46,041	10.0	122,766	5.8	181,931	6.2	19,302	5.5
REGION VII - Central Visayas		25,403	5.5	156,902	7.4	234,866	8.0	21,839	6.2
REGION VIII - Eastern Visayas		18,379	4.0	91,393	4.3	192,860	6.6	17,284	4.9
REGION IX - Western Mindanao		17,900	3.9	90,875	4.3	178,631	6.1	19,363	5.5
REGION X - Northern Mindanao		17,945	3.9	92,250	4.4	140,496	4.8	13,045	3.7
REGION XI - Southern Mindanao		38,174	8.3	149,709	7.1	269,236	9.2	28,869	6.5
REGION XII - Central Mindanao		21,363	4.6	81,728	3.9	156,219	5.3	16,775	4.7
ARMM		13,733	3.0	68,101	3.2	127,674	4.4	33,015	9.3
Caraga		16,567	3.6	62,765	3.0	123,415	4.2	15,673	4.4
<b>AGE GROUP</b>									
PHILIPPINES		459,489	100.0	2,118,185	100.0	2,932,872	100.0	353,443	100.0
15 - 19		1,378	0.3	7,321	0.3	9,830	0.3	1,578	0.4
20 - 24		12,267	2.7	55,221	2.6	76,001	2.6	11,180	3.2
25 - 29		31,403	6.8	140,248	6.6	192,220	6.6	26,835	7.6
30 - 34		47,509	10.3	217,747	10.3	284,327	9.7	38,320	10.8
35 - 39		58,506	12.7	266,046	12.6	345,130	11.8	46,066	13.0
40 - 44		58,853	12.8	278,670	13.2	358,800	12.2	45,322	12.8
45 - 49		53,864	11.7	256,831	12.1	335,433	11.4	40,084	11.3
50 - 54		47,174	10.3	229,783	10.8	311,883	10.6	35,793	10.1
55 - 59		41,914	9.1	180,831	8.5	265,191	9.0	30,463	8.6
60 - 64		38,799	8.4	169,600	8.0	254,132	8.7	26,848	7.6
65 - 69		27,739	6.0	122,806	5.8	191,130	6.5	20,259	5.7
70 - 74		20,023	4.4	88,879	4.2	142,451	4.9	14,600	4.1
75 - 79		11,242	2.4	56,781	2.7	91,247	3.1	8,728	2.5
80 and Over		8,818	1.9	47,421	2.2	75,097	2.6	7,367	2.1
<b>MARITAL STATUS</b>									
PHILIPPINES		459,489	100.0	2,118,185	100.0	2,932,872	100.0	353,443	100.0
Single		13,594	3.0	86,432	4.1	98,298	3.4	11,739	3.3
Married		369,958	80.5	1,667,212	78.7	2,288,616	78.0	280,024	79.2
Widowed		50,695	11.0	243,694	11.5	366,849	12.5	37,968	10.7
Divorced/separated		5,694	1.2	33,540	1.6	39,685	1.4	5,548	1.6
Common-law/live-in		18,844	4.1	83,755	4.0	135,505	4.6	17,413	4.9
Unknown		704	0.2	3,552	0.2	3,919	0.1	751	0.2
<b>LITERACY</b>									
PHILIPPINES		459,489	100.0	2,118,185	100.0	2,932,872	100.0	353,443	100.0
Literate		408,378	88.9	1,955,750	92.3	2,569,626	87.6	305,787	86.5
Illiterate		51,111	11.1	162,435	7.7	363,246	12.4	47,656	13.5

Table 1. Selected Characteristics of Household Heads by Land Ownership: Census 2000 (continued)

Selected Characteristics	Households with at Least 1 Land Owned	Agriculture Lands acquired thru CARP	Percent	Residential Lands	Percent	Agricultural Lands	Percent	Other Lands	Percent
<b>ETHNICITY</b>									
PHILIPPINES	459,489	100.0	2,118,185	100.0	2,932,872	100.0	353,443	100.0	
Tagalog	88,698	19.3	505,087	23.8	393,191	13.4	70,339	19.9	
Ilocano	75,940	16.5	282,428	13.3	443,931	15.1	39,764	11.3	
Cebuano	56,984	12.4	262,281	12.4	405,955	13.8	38,740	11.0	
Hiligaynon, Ilongo	49,186	10.7	135,375	6.4	184,580	6.3	19,264	5.5	
Bisaya/Binisaya	32,295	7.0	148,539	7.0	240,446	8.2	22,990	6.5	
Others	156,386	34.0	784,475	37.0	1,264,769	43.1	162,346	45.9	
<b>HIGHEST GRADE COMPLETED</b>									
PHILIPPINES	459,489	100.0	2,118,185	100.0	2,932,872	100.0	353,443	100.0	
No Grade Completed	19,928	4.3	74,297	3.5	177,490	6.1	25,881	7.3	
Pre-School	911	0.2	3,070	0.1	5,073	0.2	727	0.2	
Elementary	233,604	50.8	770,271	36.4	1,411,741	48.1	148,289	42.0	
Highschool	103,089	22.4	509,530	24.1	642,632	21.9	74,388	21.0	
Post Secondary	18,301	4.0	140,381	6.6	124,814	4.3	17,274	4.9	
College Undergraduate	39,290	8.6	284,885	13.4	256,865	8.8	38,305	10.8	
Academic Degree Holder	23,687	5.2	225,876	10.7	186,380	6.4	27,785	7.9	
Post Baccalaureate	3,149	0.7	27,508	1.3	24,878	0.8	4,666	1.3	
Not Reported	17,530	3.8	82,367	3.9	102,999	3.5	16,128	4.6	
<b>USUAL OCCUPATION</b>									
PHILIPPINES	380,535	100.0	1,623,968	100.0	2,407,315	100.0	283,150	100.0	
Officials of Government Managers, Managing Proprietors and Supervisors	8,590	2.3	75,231	4.6	60,058	2.5	11,675	4.1	
Professionals	11,378	3.0	111,533	6.9	83,678	3.5	14,421	5.1	
Technicians and Associate Professionals	5,766	1.5	57,928	3.6	41,881	1.7	6,756	2.4	
Clerks	3,695	1.0	36,376	2.2	28,671	1.2	3,932	1.4	
Service Workers & Shop and Market Sales Workers	9,116	2.4	79,296	4.9	67,024	2.8	9,550	3.4	
Farmers, Forestry Workers and Fisherman	270,660	71.1	778,515	47.9	1,681,650	69.9	172,695	61.0	
Trades and Related Workers	17,128	4.5	142,038	8.7	123,901	5.1	17,251	6.1	
Plant and Machine Operators and Assemblers	19,313	5.1	146,300	9.0	120,712	5.0	17,866	6.3	
Laborers and Unskilled Workers	26,844	7.1	158,192	9.7	153,068	6.4	22,196	7.8	
Occupation not stated	8,045	2.1	38,559	2.4	46,672	1.9	6,808	2.4	

Table 2. Characteristics of Households with and Without CARP Beneficiaries or ARBs: Census 2000

Selected Characteristics	Households with CARP Beneficiaries or ARBs	Percent	Households without CARP Beneficiaries	Percent
<b>Fuel for Lighting</b>				
PHILIPPINES	459,489	100.0	4,088,360	100.0
Electricity	276,473	60.2	2,619,585	64.1
Kerosene (gaas)	167,387	36.4	1,349,969	33.0
Liquefied Petroleum Gas (LPG)	7,121	1.5	53,904	1.3
Oil (Vegetable, Animal, etc)	994	0.2	6,488	0.2
Others	7,514	1.6	58,414	1.4

Table 2. Characteristics of Households with and Without CARP Beneficiaries or ARBs: Census 2000(continued)

Selected Characteristics	Households with CARP Beneficiaries or ARBs	Percent	Households without CARP Beneficiaries	Percent
<b>Fuel for Cooking</b>				
PHILIPPINES	459,489	100.0	4,088,360	100.0
Electricity	12,350	2.7	105,426	2.6
Kerosene (gaas)	27,433	6.0	253,867	6.2
Liquefied Petroleum Gas (LPG)	170,142	37.0	1,650,787	40.4
Charcoal	12,909	2.8	121,358	3.0
Wood	230,831	50.2	1,910,356	46.7
Others	723	0.2	6,387	0.2
None	5,101	1.1	40,179	1.0
<b>Household Amenities</b>				
Total Households	459,489	100.0	14,819,204	100.0
Radio/Radio Cassette	375,243	81.7	11,115,385	75.0
Television Set	232,354	50.6	7,824,579	52.8
Refrigerator/Freezer	146,902	32.0	4,873,087	32.9
Video Cassette Recorder	105,022	22.9	3,058,328	20.6
Telephone/Cellphone	68,117	14.8	2,096,373	14.1
Washing Machine	97,776	21.3	3,022,942	20.4
Motorized Vehicle	84,888	18.5	1,781,322	12.0
<b>Construction Materials Used for the Roof</b>				
PHILIPPINES	459,489	100.0	4,088,360	100.0
Galvanized iron/Aluminum	310,714	67.6	2,828,248	69.2
Tile concrete/clay tile	5,103	1.1	49,613	1.2
Half galvanized Iron and Half Concrete	18,776	4.1	144,900	3.5
Wood	8,927	1.9	78,538	1.9
Cogon/nipa/anahaw	110,786	24.1	941,678	23.0
Asbestos	339	0.1	3,614	0.1
Makeshift/salvaged/Improvised Materials	2,141	0.5	15,771	0.4
Others	1,212	0.3	14,085	0.3
Not Reported	1,491	0.3	11,913	0.3
<b>Construction Materials Used for the Walls</b>				
PHILIPPINES	459,489	100.0	4,088,360	100.0
Concrete/Brick/Stone	147,131	32.0	1,349,047	33.0
Wood	99,405	21.6	1,009,940	24.7
Half Concrete/Brick/Stone/and Half Wood	83,421	18.2	722,896	17.7
Galvanized Iron/Aluminum	3,903	0.8	51,877	1.3
Bamboo/sawali/Cogon/Nipa	115,246	25.1	876,364	21.4
Asbestos	349	0.1	2,631	0.1
Glass	237	0.1	1,732	0.0
Makeshift/Salvaged/Improvised Materials	3,015	0.7	24,072	0.6
Others	1,361	0.3	8,962	0.2
No walls	455	0.1	3,020	0.1
Not Reported	4966	1.1	37,819	0.9

Table 2. Characteristics of Households with and Without CARP Beneficiaries or ARBs: Census 2000(continued)

Selected Characteristics	Households with CARP Beneficiaries or ARBs	Percent	Households without CARP Beneficiaries	Percent
<b>Kind of Repair Needed for the Housing Units</b>				
PHILIPPINES	459,489	100.0	4,088,360	100.0
Needs no Repair/Needs Minor Repair	319,039	69.4	2,950,347	72.2
Needs Major Repair	81,141	17.7	667,990	16.3
Dilapidated/Condemned	2,633	0.6	22,711	0.6
Under Renovation/Being Required	9,216	2.0	67,363	1.6
Under construction	10,382	2.3	80,565	2.0
Unfinished Construction	28,383	6.2	219,123	5.4
Not Reported	8,695	1.9	80,261	2.0
<b>Floor Area of the Housing Units</b>				
PHILIPPINES	459,489	100.0	4,088,360	100.0
Less than 10 sq.	83,825	18.2	701,058	17.1
10 - 19 sq. m.	107,288	23.3	883,551	21.6
20 - 29 sq. m.	84,064	18.3	724,327	17.7
30 - 49 sq. m.	68,793	15.0	646,594	15.8
50 - 69 sq. m.	36,757	8.0	355,686	8.7
70 - 89 sq. m.	20,244	4.4	204,273	5.0
90 - 119 sq.m.	13,920	3.0	155,071	3.8
120 - 149 sq.m.	10,125	2.2	105,332	2.6
150 - 199 sq.m.	4,764	1.0	52,886	1.3
200 sq. m. and over	10,290	2.2	101,605	2.5
Not Reported	19,419	4.2	157,977	3.9

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