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Impact of Agrarian Reform on Poverty

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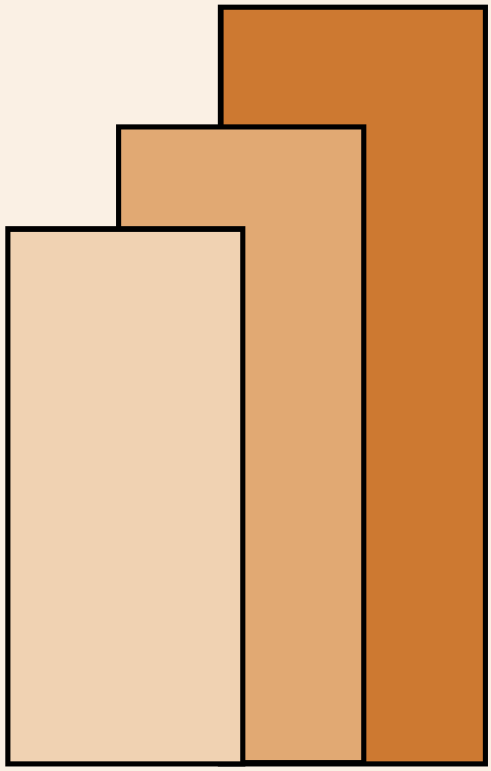

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(revised)

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Abstract

Using panel data from about 1,500 farm households and estimating from a logit model, results show that agrarian reform has had a positive impact on farmer beneficiaries. It has led to higher real per capita incomes and reduced poverty incidence between 1990 and 2000. Compared to nonagrarian reform beneficiaries, the agrarian reform beneficiaries tend to have higher incomes and lower poverty incidence. Moreover, complementary inputs such as irrigation, credit and government services tend to increase the chances of farmer-beneficiaries to be nonpoor.

Impact of Agrarian Reform on Poverty

Executive Summary

The study aims to assess the impact of the agrarian reform program on poverty. It seeks to determine whether beneficiaries of the agrarian reform program have benefited in terms of higher incomes and reduced poverty incidence.

The study uses the panel data generated by the CARP-IA Micro-Meso Component. The first survey was done in 1990 and the follow-up survey was undertaken in 2000. The panel data provides socio-economic information on about 1800 households.

The results show that agrarian reform has had a positive impact on farmer-beneficiaries. It has led to higher real per capita incomes and reduced poverty incidence between 1990 and 2000. Agrarian reform beneficiaries (ARBs) tend to have higher incomes and lower poverty incidence compared to non-ARBs. Real per capita incomes of ARBs increased by 12.2% between 1990 and 2000. Moreover, poverty incidence among ARBs declined from 47.6% in 1990 to 45.2% in 2000. Poverty incidence among ARB households is lower than among non-ARB households in both years (55.1% in 1990 and 56.4% in 2000 for non-ARBs). The difference in the poverty incidence between the two groups has widened in 2000 to 11.2 percentage points from 7.5 percentage points.

The ARBs also tend to be better off in terms of the other indicators of well-being compared to non-ARBs. They have better access to safe water and sanitation facilities**.** Members of ARB households tend to have higher educational attainment than members of non-ARB households.

The estimated logit model showed that being an agrarian reform beneficiary tends to increase one's chances of being non-poor. Access to credit and irrigation facilities also tends to increase one's chances of being non-poor. Being in an agrarian reform community also has the same effect. The findings also suggest that household size tends to lower one's chances of being non-poor. This has certain implications on the country's policy on population growth. Although there was a reduction in the average household size of ARB households from 6.30 in 1990 to 5.31 in 2000, it is still higher than the average household size for non-ARBs (5.65 in 1990 and 5.28 in 2000).

Complementary inputs are necessary to maximize the benefits from agrarian reform. Irrigation, credit and government services tend to promote higher incomes. Moreover, agrarian reform communities tend to increase the chances of a farmer-beneficiary to be non-poor.

Given the results of this study, it is important that the agrarian reform program be completed as soon as possible. Moreover, agrarian reform communities should be expanded to benefit not just ARBs but non-ARBs as well. Infrastructure support should be extended to farming communities. Credit and extension services by government agencies should also be made accessible to farmers.

In addition, the study highlighted the vulnerability of farmers to shocks, particularly weather-related shocks. Owning land is not sufficient to minimize risks. While higher incomes from diversified sources and higher savings are effective towards minimizing risks, there is also a need for some safety nets, particularly for the very poor. These safety nets would ensure that those hit by shocks need not resort to coping mechanisms that would have long term negative impact on their human capital as well as their productive capacity.

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1. Background and Objectives of the Study

The Comprehensive Agrarian Reform Program (CARP) has as its primary objectives both the improvement of equity and the increase in productivity and growth in the rural areas. Both should work towards more economic and political empowerment of the poorer section of the rural populace and increase their social capital. All of these should work towards the reduction of rural poverty and, through its positive spillover effects, urban poverty as well. Poverty is generally defined here as an inability to attain a minimum standard of living and indicates deprivation of certain basic necessities of life, the most obvious being food.

After twelve years of program implementation, it is now timely to undertake a study which will: i) analyze the consistency of CARP and the anti-poverty strategies of the government from the late eighties till the present, and ii) document the actual impact of CARP on rural poverty, and whether there are spillover effects on urban poverty.

2. The Scope and Content of the Study

The study will undertake the following:

a. Evaluate the anti-poverty strategies and programs of the Aquino, Ramos and Estrada administrations and show whether they are consistent with CARP and whether there are coordination and links between the two sets of programs.

b. Establish, through statistical analyses, whether the CARP program has made an impact on reducing the poverty incidences and depths of targeted beneficiaries, their households and communities.

c. Give policy recommendations on how CARP can be made more effective in poverty reduction and how the anti-poverty programs can contribute more effectively towards this objective in view of CARP and its impact.

The study was also intended to establish the differential and total impact of the components of CARP on the poverty incidence and depths of targeted beneficiaries, their households and communities. The components of CARP are: i) land tenure improvement, ii) land distribution, stewardship arrangements, stock options and production and profit sharing schemes, iii) provision of support services, iv) infrastructure building and improvements. However, the survey data gathered under the project did not get information on the components of CARP. Thus, the present study is not able to look into the impact of the different components of the agrarian reform program.

The panel data used in the study included the beneficiaries of CARP as well as those of earlier agrarian reform programs of the government. Thus, the observed impact on poverty may be attributable not just to CARP alone but to the earlier programs.

3. Methodology and Data Sources

3.1 Data Sources

The study makes use of survey data already gathered/being gathered by other groups. These will be complemented by data coming from administrative reports and other secondary data. Survey data that will be used are: 1) data from the household survey of the CARP-Impact Assessment (CARP-IA) project being conducted by Dr. Gordoncillo's team, 2) the 1990 agricultural household survey conducted by Dr. Gordoncillo, and 3) the 1998 Annual Poverty Indicators Survey.

Policy and program pronouncements as contained in official documents (such as the Medium-Term Philippine Development Plans for 1986-1992, 1993-1998, 1999-2004) will be the sources of information on poverty alleviation strategies and programs of the government. These will provide the basis for evaluating the anti-poverty strategies and programs of the Aquino, Ramos and Estrada administrations to see whether they are consistent with CARP.

3.2 Method of analysis

Household data from the 1990 and 2000 Gordoncillo surveys were utilized to examine the impact of CARP on the beneficiary households. A sample of about 1000 ARBs and 1000 non-ARBs were available from the two surveys.

Key economic and socio-demographic characteristics were picked up from the two surveys. These include:

Household size
Location
Income, by source (farm vs. non-farm)
Expenditure, by type
Assets, by type
Educational attainment
Access to potable water
Access to sanitary toilet facilities
Housing structure
CARP status (whether ARB or non-ARB)
If ARB, type of ARB
Date of installation
Perceived welfare status (self-rated poverty)

To assess the impact of CARP on households, income-based as well as non-income based measures of poverty were used to reflect the multi-dimensional nature of poverty. For instance, income, consumption, ownership of durables, investment and savings, and housing were some of the variables examined.

Cross tabulations were done using the survey data. Comparison of means of the different variables were undertaken to see if the ARBs are faring better than the non-ARBs in terms of the various measures of well-being.

A panel data was constructed by pooling the 1990 and 2000 surveys conducted by Dr. Gordoncillo's team. The panel data was used to determine changes in income and poverty status of the households. Linear regression analysis and multinomial logit models were used to determine which factors are significant determinants of household income changes and poverty status changes. The list of explanatory variables included CARP status, type of ARB and date of installation, size of parcel, and educational attainment of household head (or average years of schooling of household), and other socio-demographic characteristics.

Regression analysis was used to determine whether being an ARB is a significant determinant of income. The dependent variable was income and the independent variables included CARP status, type of ARB, and socio-demographic characteristics of the household/household head.

Limited dependent variable models (logit) was also employed to determine how being an ARB affects the probability of being non-poor. Poverty threshold for 2000 was estimated by updating the official poverty threshold for 1997 using the consumer price index.

1998 Annual Poverty Indicators Survey

In 1998, the Annual Poverty Indicators Survey (APIS) was conducted by the National Statistics Office. This household survey provides data on different measures of poverty as well as socio-demographic characteristics of the households. Since the survey can identify ARBs and non-ARBs, the survey was used to compare the well-being of the two groups in 1998 (the time when the Asian crisis was still raging and the impact of El Nino was still being felt).

The APIS contains data on the socio-economic characteristics (such as income, expenditures, minimum basic needs indicators, etc.) of the agrarian reform beneficiaries and non-ARBs. The survey, however, does not provide information on the different components of the comprehensive agrarian reform program.

The following variables were obtained from the APIS dataset:

Income
Expenditures
Assets
CARP status (whether ARB or not)
Access to potable water
Access to sanitary toilet facilities
Educational attainment
Household size
Coping mechanisms

While the APIS contains many variables that are also in the Gordoncillo surveys, there was no attempt to link the different surveys. This is because the differences in the survey instruments are likely to lead to incomparable measures of

income and expenditure. Nevertheless, the APIS data, by itself, can provide information on how ARBs and non-ARBs fare in times of crisis. This could provide some insights as to whether ARBs are less vulnerable to shocks than non-ARBs and whether their coping mechanisms to declines in incomes are different.

3.3 Estimation Models

Logit models

Binary-choice models assume that individuals are faced with a choice between two alternatives and that the choice depends on identifiable characteristics. The purpose of a qualitative choice model is to determine the probability that an individual with a given set of attributes will belong to one category rather than the alternative category.

In this case, we want to determine what is the probability that a household will be non-poor given a set of socio-economic characteristics of the household.

Let us assume there is an underlying response variable y_i^* defined by the regression relationship

$$y_i^* = b' x_i + u_i$$

In practice y_i^* is unobservable. What we can observe is a dummy variable y defined by

$$y = 1 \quad \text{if } y_i^* > 0$$
$$y = 0 \quad \text{otherwise}$$

In this formulation, $b' x_i = E(y_i^* / x_i)$

$$\text{Prob}(y_i = 1) = \text{Prob}(u_i > -b' x_i)$$

$$\begin{aligned} \text{Prob}(y_i = 1) &= \text{Prob}(u_i > -b' x_i) \\ &= 1 - F(-b' x_i) \end{aligned}$$

where F is the cumulative distribution for m. In the logit model, the cumulative distribution of u_i is the logistic. In this case,

$$F(-b'x_i) = \frac{\exp(-b'x_i)}{1+\exp(-b'x_i)}$$
$$= \frac{1}{1+\exp(b'x_i)}$$

Hence,

$$1 - F(-b'x_x) = \frac{\exp(b'x_i)}{1+\exp(b'x_i)}$$

The dependent variable, *y*, is the poverty status, where 0 indicates being poor and 1 indicates being non-poor. Poor households are those whose per capita income is below the per capita poverty threshold. The poverty thresholds for 2000 were estimated by updating the 1997 poverty thresholds determined by the National Statistical Coordination Board. The thresholds are available by region and by urban-rural. The consumer price index for the region was used to bring the poverty thresholds to 2000 prices.

The explanatory variables to be used in the models include the following:

1. Educational attainment of household head
2. ARB status of household
3. If ARB, number of years that the household has been an ARB
4. Agricultural land size
5. Land type (irrigated vs. non-irrigated)
6. Location (in ARC vs. not in ARC)
7. Household size
8. Whether the household received assistance from government agencies

Multiple regression to determine per capita real income level in 2000

The dependent variable is real per capita income. The same set of explanatory variables used in the logit model are considered in estimating the regression model.

4. THE COMPREHENSIVE AGRARIAN REFORM PROGRAM (CARP)

4.1 Earlier Agrarian Reform Programs

The skewed agrarian structure of the country has long been a major problem that originated from the 400-year history of colonization. Unequal land distribution and even worse, landlessness, following the establishment of the haciendas and the encomienda system during the time of the Spaniards gave rise to numerous peasant uprisings. This prompted the American colonizers to establish land reform measures in the Philippines for the first time in the 1930s.

The first effort was by then Civil Governor William H. Taft who was able to purchase 166,000 hectares of friar landholdings to be distributed to about 60,000 tenants. However, because of the tenants' ignorance of the law and the colonial government's policy of selling the lands at a very high price, the bulk of these estates went to American firms, businessmen, and landlords (Adriano, 1991).

The "Homesteading Program", also by the American administration, encouraged the migration and settling of Filipinos to unpopulated and uncultivated areas as an effort to help develop these places. But the program did not succeed since Filipinos preferred to stay in sitios and poblaciones (Adriano, 1991).

The Rice Tenancy Act (Public Act No. 4054) of 1933 provided for a 50-50 sharing arrangement between the tenant and the landowner, a 10 percent interest ceiling on loans by the tenants, and the non-dismissal of tenants on tenuous grounds. One of the provisions, however, was that majority of the municipal council members should petition for the implementation of the law in their place (Adriano, 1991).

Because of the failure of past land reform measures, the government came up with the controversial Robert Hardie Report of 1952. It contained three recommendations and these were: a) the abolition of the share tenancy; b) the establishment of owner-operated family-sized farms as the basis of the rural economy; and c) the establishment of fair tenancy practices for those who unavoidably continue to work on the land as tenants. Unfortunately, these recommendations were not adopted by the Quirino administration preferring instead to continue through the creation of the Land Settlement and Development Corporation (LADESECO) the land resettlement program of the defunct National Land Settlement Administration (NSLA) under the American regime. LADESECO and a number of legislations were also employed by the Magsaysay administration in an attempt to solve the agrarian problems of Huk surrenderees. Two of these legislations were the Agricultural Tenancy Act (R.A. 1199) of 1954 and the Land Reform Code of 1955 (RA 1400) which also became ineffective as the landlord-dominated Congress cut down their reinforcement by providing only meager sum to the programs while watering-down the provisions by raising retention limits and inserting additional requirements.

There are other several efforts on land reform in the early 1960's. One of these was the Land Reform Code of 1963 (RA No. 3844) which paved the way for the creation of the Agricultural Credit Administration (ACA) and the Agricultural Productivity Commission (APC), both were tasked to provide adequate support

services to the land reform program, but due to mismanagement and outright graft and corruption, these entities failed to accomplish their mandate (Adriano, 1991).

Land Reform during the Marcos Administration [1]

The first major attempt at land reform was Presidential Decree No. 27, declared by President Marcos in 1972 under the Martial Law. Data on land distribution in 1971 showed that over half (52 percent) of all agricultural lands were controlled by the top 15 percent of landowners. PD 27's main features were, like the Land Reform Code of 1963, the Operation Land Transfer and the Operation Leasehold programs. These programs and their implementation,0 however, remained limited in many aspects and, like the previous programs, has a number of flaws, among which are: a) the coverage was severely limited to rice and corn lands; b) the lands covered are those used for farm production by 1972 but not those cultivated from 1973 onwards; c) the seven-hectare retention limit is still considered high compared to other East Asian countries whose programs were successful; d) the program allowed absentee landlords to retain seven hectares while other countries imposed zero retention limit; and e) the burdensome process of obtaining land was a major obstacle to the rapid implementation of PD 27 (Adriano, 1991).

The agrarian reform program of the Marcos administration has four major program components, i.e., the Leasehold Operation, Operation Land Transfer, Land Consolidation, and Settlements. The strategy was to overcome various constraints in agrarian reform such as administrative, financial, as well as managerial constraints. The agrarian reform activities must be carried out in such a way that it can increase productivity and income of small farmers. The private sector could assist the government in modernizing the agricultural sector to complement the agrarian reform program. Another equally important policy being imposed was that agricultural credit must continue to flow to various priority projects of agrarian reform. Credit should also be extended to small farmers to induce them to participate in government programs and to promote social equity. It was also made imperative that the credit delivery system should be improved. The Marcos Administration has also focused on the intensified modernization program centered on the formation of compact farms and the development of resettlement areas. Compact farming, complemented with land consolidation of big landed estates, was said to bring about better management and eventually result in the formation of cooperative farms. It also allows wider access to modern farm technology and maximizes the benefits of economies of scale. The development of resettlement areas, on the other hand, had to be done through total community planning, giving more emphasis on effective land usage with better market linkages.

The provision of various support services was also a major concern, among which were the improvement of marketing system, farm-to-market roads, irrigation and post harvest facilities, extension, research and institutional development.

[1] This is based on the assessment in the 1987-1992 Medium-Term Philippine Development Plan.

As of the end of June 1986, the agrarian reform of the Marcos administration has the following physical accomplishments:

- ***Leasehold Operation.*** The targeted date for the completion of the leasehold operation by the Marcos administration was at the end of 1978. By then, all tenants in rice and corn lands will have secured their written leasehold contracts. This target, however, was not met, as it was only at the end of June 1986 that the total number of farmers targeted to be benefited by the program has been almost covered. There were a total of 538,758 farmers who have executed 727,849 lease contracts with their respective landowners covering 567,078 hectares of rice and corn lands.

- ***Land Transfer.*** The full documentation of land transfer and issuance of Certificates of Land Transfer (CLTs) were targeted for completion by 1980. These activities too were not accomplished at the target date. As of the end of June 1986, a total of 657,623 CLTs have been issued to 440,239 farmer-tenants covering 755,172 hectares. This posts an accomplishment rate of 104.3 percent out of the total CLTs to be issued. The landowners' compensation, on the other hand, was targeted for completion by the end of 1987 as indicated by the ten-year Plan (i.e. 1978-1987) of the Marcos administration. This plan covered 37,100 landowners and 678,000 hectares. However, at the end of June 1986, only 12,391 landowners (or 33 percent of the target) were given compensation claims covering 262,357 hectares (or 39 percent of the target). Moreover, only around 4,339 landowners or 35 percent have been actually paid. As for the issuance of Emancipation Patents, there were 22,187 EPs that have been distributed to only 13,590 farmers or around 4 percent of the 373,100 farmers targeted covering a total of 11,087 hectares or 1.5 percent of the 719,700-hectare target area.

- ***Land Consolidation.*** The target for land consolidation was 54,000 hectares of rice and corn lands to be accomplished by the end of 1987. By the end of 1986, there were 154 landed estates with an area of 99,928 hectares being tilled by 52,983 farmers developed for land consolidation. However, there were only 19,709 Deeds of Sale given to 12,320 farmers, which was used as basis for the issuance of Transfer Certificates of Title (TCTs). The percentage of farmers who actually received Deeds of Sale against the targeted number stood at 29 percent.

- ***Settlements.*** The administration has set the end of 1987 as the target date for the resettlement of some 106,020 families and 71,740 pioneer settlers in Mindanao particularly regions IX and XII. By end of 1986 however, only 58,662 families were resettled in 46 settlements covering an area of 746,000 hectares. Various infrastructure facilities including 2,667 kilometers of roads, 327 bridges, 3,204 culverts, 2,670 settler's houses, 468 school buildings, 73 health centers, 116 irrigation dams, 989 irrigation pumps, and 127 motor/tractor pools were also constructed. This program was complemented by various support projects such as the launching of

775 compact farms, 7 cooperative farms, and 135 intensive rice farming projects which had benefited 27,682 farmers tilling an area of 50,894 hectares.

Assessment on the agrarian reform program under the Marcos administration indicated was that it was limited in both scope and thrust as it failed to reach the majority of the farmers. Covering only rice and corn areas, the program was able to issue emancipation patents (EPs) to only 3.2 percent of its target beneficiaries based on the original estimation in 1972. It has been observed that there was inadequate support to the ARB's. Problems in land valuation, landowner's resistance and final surveys have caused the delay of program implementation.

Land reform during the Aquino Administration[2]

The predecessor of CARP was the Accelerated Land Reform Program (ALRP), initiated after the ratification of the Constitution in February 1987. The ALRP, as in PD 27, imposed a ceiling of seven hectares for all croplands, the distribution of large privately-owned farms, rice and corn lands, small farms, alienable as well as disposable lands exempting areas such as ancestral tribal lands and those that are used for public service. Other features of the program include tenancy regulation and voluntary land sharing and corporate stock sharing as alternative schemes to land reform. It may have contrasting features compared to past land reforms; however it still had flaws in it. Hence, the Aquino government drafted Executive Order No. 229 which focused on the administrative procedures and not on the substance of an agrarian reform measure. It detailed the mechanics of land registration, private land acquisition and the compensation procedures to land owners. It also specified the composition and functions of the governing entities, which will coordinate and supervise the implementation of the program. The land reform issues such as the retention limit and priority areas were left for the Congress to define. Both Houses produced their own agrarian bills. These two bills later on mirrored the contrasting interests of both Houses. While the landlord-dominated Lower House reflected the interests of landowners, the urban-based Senators emphasized the need for a land reform to attain economic development. These disputes and debates and the fact that there is diversity among the landowners themselves when it comes to land reform measures have paved the way for them to compromise. It is within this context that the CARL was put into law.

As mentioned earlier, the CARP is so far the most comprehensive agrarian reform program ever formulated. Unlike that of PD 27, which include only rice and corn lands, CARP covers all private and public agricultural lands regardless of commodity produced and tenurial status of the tiller including other lands of the public domain suitable for agriculture.

CARP recognizes as beneficiaries of the agrarian reform program not only farmers but all workers in the land given that they are landless and willing to cultivate

[2] This is based on the assessment in the Medium-Term Philippine Development Plan 1993-1998.

the land. The two agencies mandated to do the tasks of land acquisition and distribution are the Department of Agrarian Reform (DAR) and the Department of Environment and Natural Resources (DENR). The program used variable retention limits: seven hectares for rice and corn lands, five hectares for non-rice and non-corn lands, and three hectares for each of the heirs, 15 years old and above, of the landowner given they are actually cultivating or managing the land. Aside from land acquisition and distribution, which is the very essence of CARP, it also provides for the delivery of support services such as rural development projects, human resources development activities and infrastructure facilities. It also ensures the tenurial security of farmers and farm workers by giving options like leasehold arrangement, stock distribution option, and production and profit sharing scheme. It also provides legal assistance to beneficiaries to help resolve agrarian disputes. To effectively channel these support services to the Agrarian Reform Beneficiaries, CARP adopted the strategy of creating Agrarian Reform Communities.

The CARP has been generally able to attain its land distribution target for the year 1987-1992. For that same period, a total of 898,420 landless tenants and farm workers became legitimate recipients of either land titles or free patents and support services.

Land Reform during the Ramos Administration[3]

The agrarian reform policies of the Ramos administration focused on accelerating the direct land transfer and non-land transfer programs through adopting more rational and simpler operating procedures and a fair, expeditious and inexpensive settlement of agrarian disputes. It focused in the adoption of a fair land valuation formula and prompt payment of just compensation to encourage landowners to cooperate and support agrarian reform. The administration also encouraged the development of alternative schemes of landowner compensation to motivate them to invest in rural-based industries that have strong linkages with agriculture. It also adopted a progressive agricultural land tax to encourage smaller landholdings among large landowners, a land conversion tax to discourage land conversion and idle land tax to encourage landowners to cultivate the land. These taxes were also needed to augment the Agrarian Reform Fund aside from mobilizing both local and foreign resources. The administration also pursued for the amendment of Section 63 of the CARL making the ARF a revolving fund and increasing the fund to P100 Billion. It also planned to increase the composition of the DAR's Adjudication Board's full-time members from three to nine and upgrading their salaries. The budget of DAR therefore had to be increased to cover reorganization costs. The protection of ARBs whose lands were converted to commercial, industrial or residential use by making them shareholders or co-investors of the industrial/commercial venture was also one of CARP's major agenda. Also, the CARP bureaucracy had to be motivated further for more successful results and its partnership at the provincial level with various government and non-government organizations, local government units, farmer-beneficiaries, landowners, legislature, media and the academe has to be enhanced.

[3] This is based on the assessment in the Medium-Term Philippine Development Plan 1999-2004.

Strengthened coordination among agencies implementing CARP, the legislature, judiciary and LGUs were also being pursued. The use of an integrated and area-focused approach in implementing CARP through the ARCs remained a major strategy. Lastly, the Ramos administration emphasized that the various activities of CARP should be attuned to the modernization of agriculture and the promotion of industrialization in the country.

The Ramos administration has set a target of 3.4 million hectares of land to be distributed to farmer-beneficiaries in which it was able to accomplish 2.6 million hectares or 33.3 percent of the total CARP scope of 7.8 million hectares. It has brought the total accomplishment for land acquisition and distribution at the end of June 1998 to 4.7 million hectares or 60 percent of the scope.

Land Reform during the Estrada Administration

The Estrada administration focused on fasttracking land acquisition and distribution (LAD). It aimed to reduce distortions and uncertainties in land market in the rural areas to be able to help increase farmers' productivity and the private sector investment as well. Another major step was the intensification of the delivery of support services and social infrastructure to boost incomes of ARBs. It also prioritized the improvement and protection of the tenure status of stakeholders and the promotion of agri-industrialization in CARP areas through joint ventures, corporatives, contract farming and other types of production and marketing arrangements. It also aimed for the completion of land parcel mappings covered by collective Certificate of Land Ownership Awards (CLOAs). The Estrada administration also focused on the strengthening of the databases of the implementing agencies, i.e.. DAR and DENR on the location of lands to cover and on the potential beneficiaries of CARP. It also promoted the use of market-based instruments in land distribution such as progressive agricultural land tax and direct land transfer. Lastly, the Estrada administration pursued to accelerate the resolutions of agrarian-related cases.

The Estrada administration has promised to complete the distribution of the CARP scope of 7.8 million hectares by 2004. From July 1998 to September 2000, the total number of beneficiaries of CARP under the Estrada administration was 182,762.

4.2 THE COMPREHENSIVE AGRARIAN REFORM LAW: LEGAL BASIS OF CARP

The Comprehensive Agrarian Reform Program was a response to the people's clamor and expectations of a more effective land reform program that would supposedly correct the many flaws that plagued the previous land reform programs.

Republic Act 6657, signed into law on June 10, 1988 by President Corazon Aquino, known as the Comprehensive Agrarian Reform Law of 1988 (CARL), is an act instituting a Comprehensive Agrarian Reform Program to promote social justice and industrialization, providing the mechanism for its implementation, and for other purposes.

The law's major features are the following:

- It provides for the coverage of all agricultural lands regardless of crops produced or tenurial status of the tiller;
- It recognizes as beneficiaries of the program all workers in the land given that they are landless and willing to till the land;
- It provides for the delivery of support services to program beneficiaries;
- It provides for arrangements that ensure the tenurial security of farmers and farmworkers such as the leasehold arrangement, stock distribution option and production and profit sharing; and
- It creates an adjudication body that will resolve agrarian disputes.

Scope. The Comprehensive Agrarian Reform Law of 1988 covers, regardless of tenurial arrangement and crop produced, all public and private agricultural lands as provided in Proclamation No. 131 and Executive Order No. 229, including other lands of the public domain suitable for agriculture. Originally, the total area of this coverage was calculated to be 10.3 million hectares. The latest CARP Scope Validation (CSV) however, has pegged the total program area at 8,169,545 hectares. Of this total area, 54 percent (4.4 million hectares) falls under the responsibility of DAR while the remaining 46 percent (3.8 million hectares) comprises the DENR's jurisdiction.

The law designated that land acquisition and distribution are to be done in a period of ten (10) years following the effectivity of the law. Phase One covers rice and corn lands under PD 27; all idle or abandoned lands; all privately-owned lands voluntarily offered by the landowners for land reform; all lands foreclosed by government financial institutions; all lands acquired by the Presidential Commission on Good Government (PCGG); and all other lands owned by the government devoted to or suitable for agriculture (RA 6657). Phase Two covers all alienable and disposable public agricultural lands, all arable public agricultural under agro-forest, pasture and agricultural leases that are cultivated and planted to crops in accordance with Section 6, Article XIII of the Constitution; all public agricultural lands which are to be opened for new development and resettlement; and all private agricultural lands in excess of fifty (50) hectares. Phase Three includes private agricultural landholdings above 24 hectares up to 50 hectares; and landholdings from the retention limit up to 24 hectares.

Lands that are exempted from CARP are those with a slope of more than 18 percent; reserved lands such as forest reserves, watersheds, national parks, fish sanctuaries, church and mosque sites, and cemeteries; and lands that are used for national defense, education and experimental farms. The law also states that ancestral lands inhabited and used in a culturally appropriate way by indigenous cultural communities will be protected and therefore would not be distributed.

Retention Limit. The retention limit for rice and corn lands is seven hectares, same as that in PD 27; and for non-rice and non-corn lands retention limit is five hectares while the heirs of the landowner who are 15 years old and above can retain three hectares each given they are actually tilling or managing the land. The original homestead owners and their heirs are allowed to keep and cultivate their homestead

lands of up to 24 hectares while agrarian reform beneficiaries (ARBs) can own and till as much as three hectares.

Beneficiaries. RA 6657 includes all agricultural lessees and share tenants regardless of crops grown as well as regular, seasonal and other farm workers, and farmers' organizations or cooperatives. Other potential beneficiaries are agricultural graduates, rural women, veterans and relatives of enlisted men and women, retirees of the AFP and the Integrated National Police, and rebel returnees and surrenderees.

4.3 COMPONENTS OF CARP

4.3.1 Land Tenure Improvement

The Comprehensive Agrarian Reform Law aims to promote social equity and justice by restructuring landownership patterns. Through land distribution, the government ensures that the tiller has power over his tillage, his own productivity and economic viability.

Land Distribution

The land acquisition and distribution are the main essence of the CARP. There are at least four government agencies mandated to participate in the land acquisition and distribution process. These are the Department of Agrarian Reform (DAR), Department of Environment and Natural Resources (DENR), Land Bank of the Philippines (LBP), and the Land Registration Authority. The DAR is involved in land distribution of private and government-owned lands and settlement areas. The DENR, on the other hand, is responsible for land survey and approval of survey plans; land distribution of public lands; and the distribution of stewardship contracts in forestry areas. However, starting from 1993, DAR assumed the task of land survey except for the survey of public alienable and disposable lands and integrated social forestry areas. The Land Bank of the Philippines, on the other hand, is responsible for land valuation and landowners' compensation while the Land Registration Authority is for land titling and registration.

Under RA 6657, land acquisition and distribution shall be accomplished within a period of 10 years, commencing on June 10, 1988 and ending on June 10, 1998. However at the end of this 10-year period in June 1998, DAR performance reports show that only 56 percent of its target of 2.7 million beneficiaries has been accomplished so far. This figure had gone up by only a few percentage points to 63 percent as of September 2000. DENR, on the other hand, has accomplished 77 percent or 1,273,845 farmer-beneficiaries out of the 1.7 million target beneficiaries as of July 1998 (Table 1). Appendix 1 shows the number of beneficiaries of DAR while Appendix 2 shows the number of beneficiaries of DENR. Given all these accomplishments in land distribution, the program's implementation was extended for completion in the year 2004.

Table 1. Accomplishments in Land Distribution
Number of Beneficiaries
As of 1998

AGENCY	TARGET	ACCOMPLISHMENT	PERCENT ACCOMPLISHED
DAR	2,696,817	1,568,676	58.17
DENR	1,512,189	1,197,275	79.17

Source: DAR, Policy and Strategic Research Service

Leasehold Operation

Leasehold Operation is a non-land transfer program that protects the tenurial status of tenant-farmers in tenanted lands. This is implemented when the tenant is working within the landowner's retention limit of five hectares and the CARP-covered lands that are not yet due for distribution. In this program, the tenants are entitled to 75 percent of the net harvest after the deduction of production expenses. As of September 2000, the leasehold operations have benefited a total of 1,060,144 ARBs nationwide. From January to September of 2000, there were 5,742 farmers who benefited from the scheme (Appendix 3).

Production and Profit Sharing

This is a temporary arrangement wherein corporate farms (operating under a lease or management contract with more than P5 million gross sales per annum) are to execute production and profit sharing plans with their farm workers. These include corporate agricultural landowners who availed of deferment as provided under Section II of R.A. 6657.

Stock Distribution Option

Under this scheme, qualified beneficiaries are given the right to purchase from the landowning corporation capital stocks that are equivalent to the value of the land devoted by the company to agricultural activities. They are also entitled to dividends, other financial benefits and representation in either the company's board of directors, management or executive committee. As of December 2000, there are 14 stock distribution proposals covering an area of 8,388 hectares that were approved by PARC while 20 applications are still under process (Appendix 4). Appendix 5 shows the list of the 14 corporations with approved proposals.

Commercial Farms Deferment

Under this arrangement, several agricultural lands are listed for future acquisition and distribution. In this way, corporate landowners of newly established commercial plantations are given enough time to recover their investments. After the deferment period, these lands shall be subjected to immediate acquisition and distribution.

The beneficiaries under the different components of CARP total 4,079,334 as of 2000 (Table 2).

Table 2. Beneficiaries of Land Reform Program

Program	Number of Beneficiaries
1.Land Transfer of DAR	1,697,566[1/]
2.Land Transfer of DENR	1,273,845[2/]
3.Leasehold Operations	1,098,948[3/]
4.Stock Option	8,975[4/]
TOTAL	**4,079,334**

NOTES:

[1/] 1972 - Sept. 2000

Source: DAR, Policy and Strategic Research Service (MIS and FOSSO-IMR Reports)

[2/] This excludes 163,686 FBs prior to CARP in Integrated Social Forest areas.

Period covered: July 1987- June 2000

Source: DAR, Policy and Strategic Research Service

[3/] As of Sept 2000

Source: BLAD Accomplishment Report

[4/] As of December 2000

Source:Task Force on PPS,SDO, and CFD

4.3.2 Program Beneficiaries Development

Land distribution alone is not enough to improve the productivity of Agrarian Reform Beneficiaries (ARBs). The government recognizes the need for support services to complement land distribution such as credit facilities, technology and infrastructure.

Agrarian Reform Communities Development

The DAR created the Agrarian Reform Communities (ARCs), or clusters of barangays, as convergence areas of development efforts by all government agencies, NGOs and other people's organizations. It is through these clusters that support services are being channeled to the farmer-beneficiaries for them to productively perform their role in community development process. Farmers are organized into teams where they undergo various organizational capability building and strengthening activities, and trainings on ARB development. In this way, the DAR builds the capacity of ARCs to assume the responsibility for their own development. Moreover, to increase the income of farmer-beneficiaries in the ARCs, the DAR establishes links between farmers' organizations and agri-business enterprises to facilitate access to market opportunities, production inputs, technology and credit facilities.

The Situationer Report on ARCs showed that as of March 2000, there are 1,060 ARCs established nationwide. Within these ARCs, there are a total number of 2,596 organizations, with members totalling 223,273 that are being assisted by DAR. As of March 2000, the average number of organization per ARC still stands at two.

On ARB empowering, a report for the first quarter of 2000 show that 7 percent of the ARB population located in ARCs nationwide were trained on the different components of ARC development.

Infrastructure Facilities

One vital way of improving the income of ARBs is by building physical and economic infrastructures such as farm-to-market roads, irrigation systems, bridges, and post-harvest facilities. As of the end of 1999, the number of DAR-initiated infrastructure projects currently being managed by the ARCs and local government units include 948 farm-to-market roads; 7,286 post-harvest facilities; 571 irrigation systems; and 346 bridges.

Credit Facilities

To finance various agricultural and livelihood projects in the ARCs, the DAR put up its lending windows. These are the: a) DAR-QUEDANCOR CARP Barangay Marketing Centers (for the construction, expansion and acquisition of on-farm warehouses with solar dryers, rice mill and other ancillary equipment and for marketing of grains); b) the DAR-LBP Countryside Marketing Partnership Program (for production credit and affordable ownership of pre- and post-harvest facilities); c) DAR-KMI Peasant Development Fund (for agro-industrial development); d) Credit Assistance Program for Program Beneficiaries Development (CAP-PBD) (for agricultural production inputs, pre- and post-harvest facilities); e) DAR-ERAP Trust Fund (formerly the National Livelihood Support Fund) (for livelihood micro-projects); and f) DAR-Technology and Livelihood Resource Center (for viable non-rice livelihood projects like processing, manufacturing, crop production).

DAR reports show that as of the first quarter of 2000 DAR-LBP Countryside Partnership Program has extended loans worth PhP 309.222 million to 13,760 ARBs. The CAP-PBD on the other hand has funded 158 projects with a total loan value of PhP 102.20 million benefiting about 5,400 ARBs. The DAR-ERAP Trust Fund since its implementation in 1997 has funded 64 projects worth PhP 450 million benefiting 28,500 ARBs.

Information Campaign

The DAR also disseminates information about CARP to the public to reach out to a greater number of program clientele, support groups and other sectors of the society. This is done through different symposiums, briefings, distribution of printed materials, maintenance of bulletin boards and the use of trimedia outlets.

Networking and Linkaging

To strengthen the implementation of CARP, various consultations and dialogues with peoples' organizations, NGOs and other concerned sectors are conducted. This is to foster tripartism, to resolve different operational and policy-related problems and other issues, and to speed up their resolution. In 1999 alone, the number of consultations has totaled 5,095 involving 78,481 PO and NGO members.

Resource Mobilization

The national government's budget for CARP is limited. To finance the complex process of support service delivery, the DAR has tapped foreign resources to raise additional funds necessary for the complex process of support service delivery. Projects funded by these agencies include the construction of infrastructure facilities, institutional building and cooperative development; credit delivery; agriculture and enterprise development; farm systems development; and the conduct of policy studies. The DAR's foreign partners include: the Governments of Japan, Sweden, Italy, Netherlands, Belgium, Canada, The Federal Republic of Germany, the European Union, and other foreign institutions such as the World Bank, UNDP, International Fund for Agricultural Development, among others. From 1992 to March 2000, DAR has mobilized PhP 25.33 billion which supports 30 development projects in ARCs.

4.3.3 Agrarian Justice Delivery

Agrarian Legal Assistance

Extending legal assistance during court hearings is a major support provided by the CARP to its farmer-beneficiaries. The DAR lawyers handle three types of cases and these are the judicial, quasi-judicial and non-judicial cases. Judicial cases may be civil or criminal in nature and are filed in the regular courts. Quasi-judicial on the other hand includes ejectment, reinstatement, termination of leasehold agreement, falling in the jurisdiction of the DAR Adjudication Board (DARAB) and its adjudicators while non-judicial cases are those arising from agrarian law implementation and related implementing rules and regulations and personnel discipline cases. DAR reports show that as of the first quarter of 2000, there are 1,500 judicial and 4,680 quasi-judicial cases pending nationwide.

Adjudication of Cases

Through the DARAB, the Department is vested with quasi-judicial powers to determine and adjudicate disputes, cases, controversies and matters involving the implementation of RA 6657 and other related issuances.

4.4 PREVIOUS ASSESSMENTS OF THE COMPREHENSIVE AGRARIAN REFORM PROGRAM

4.4.1 Assessment of RA 6657

In a study made by Adriano (1991) entitled "*A General Assessment of the Comprehensive Agrarian Reform Program*", she noted that there are several loopholes in the legal basis of CARP that may worsen the already inequitable agrarian structure in the country. One of these is the limited area coverage of the law where it excludes a long list of land types that constitutes the non-reform sector. This exclusion of such many types allows big landowners to devise different evasionary mechanisms so as not to be included in the reform area. These landlords, for instance,

convert their landholdings into "non-profit" ventures since the law exempts areas used for non-profit activities. Another flaw is that CARL endorses variable retention limit. This however is less efficient when it is compared to a single retention limit, which is substantially easier and less costly to implement. With a single retention limit, evasionary mechanisms may be reduced. Moreover, Adriano mentioned that the smaller the ceiling, the better since it means that there would be greater number of beneficiaries and the provision of support services are more evenly distributed.

RA 6657 also stipulated provisions exempting agribusiness plantations from land reform with the belief that there is economies-of-scale in farm productions. This may not be true because types of farms such as plantations are inefficient users of both scarce and abundant resources. The law also seems to promote the co-existence of two extreme modes of production (i.e., small farms producing food and other cash crops; and large-sized farms devoted to the production of export crops). This bi-modal agrarian structure is also an inefficient arrangement for a country with a highly inelastic land supply. This is because large-sized farms tend to exploit the scarce land resource extensively and employ more scarce capital resource intensively while small farms, in contrast, use land more intensively employing more abundant labor resource (Adriano, 1991).

As the law prefers owner-operator type and direct administration contracts, tenancy regulation prohibiting share tenancy was imposed. Studies show that sharecropping arrangements help in the reduction of enforcement and transaction costs brought about by market imperfections. Thus, regulating such will prevent majority of the landless farm workers from improving their income/status (Adriano, 1991).

Geron (1994), in her study on the impact of CARP on the crop sector, noted that the law's article on non-transferability of ownership for a period of ten years and non-enforceability (confiscation of land in case of defaults on land amortization) may prevent the access of ARBs to formal financial credit. The implementation of CARP resulted in the access of Agrarian Reform Beneficiaries (ARBs) to institutional credit but this is because the Land Bank of the Philippines' mandate was to provide the ARB's credit needs with funds from the Agrarian Reform Fund (ARF). Geron's study showed that although the program has caused the displacement of abusive informal lenders because of the LBP's low rates, it still was not able to integrate the beneficiaries into the formal financial system since none of the study's respondents are able to borrow from other institutional sources other than LBP.

The cumbersome land valuation is another factor affecting the easy and quick implementation of the program. Aside from this, it also is vulnerable to landowners' evasionary tactics and causes aggravation of the government rent-seeking activities (Adriano, 1991).

Lastly, Adriano (1991) noted that the CARL favors only a small portion of the landowning class. These are the corporate and commercial farm owners and the rural middle class. The CARL also tend to benefit renter-landowners so long as they convert their tenant-based arrangements to either owner-cultivatorship or direct administration arrangements or change the land use type from agricultural to non-

agricultural. While the law is intended to benefit agricultural lessees and share tenants, their chances of getting a larger share of the reformed area will depend on their ability to organize their sector and fight for their welfare. She also emphasized that the main losers of the CARL are the landless rural farm workers who have neither farms to rent nor permanent employment in plantations.

4.4.2 ASSESSMENT OF THE IMPLEMENTATION OF CARP

Adriano, in her study entitled "DAR, Land Reform-Related Agencies and the CARP: Government and Alternative Approaches to Land Acquisition and Distribution", mentioned that several factors contributing to the poor performance of CARP in land distribution include: a) the slow pace in land survey process; b) backlogs in land registration; c) lack of support from landowners largely because of the slow processing of and low payment for their land; and d) cumbersome land acquisition and distribution process for each land type. There are also features of the LAD that were created to discourage rent-seeking activities. These include: a) numerous documents required in various phases; b) the difficulty in the coordination of land-reform-related activities by various agencies; and c) the multi-layered counter-check systems. These features however affected the speedy enforcement of land reform causing also decentralization in the decision-making process. She mentioned further that DAR's sluggish performance in land acquisition and distribution was a consequence more of the slow development in the land acquisition process than on the distribution component. One factor causing slow acquisition is the problem of limited funds. To address this, LAD and not non-LAD activities should be prioritized in budgeting while personnel staff has to be streamlined and re-aligned to bring down personnel costs.

Another way of evaluating the performance of CARP in uplifting the quality of life of its beneficiaries is looking at its effect on their income and productivity. A paper by Bravo et al (2000) on the current state of Agrarian Reform Beneficiaries found out that the average household income of the ARB households are low and generally just enough to meet the minimum basic needs of the household members. More than half of the income already comes from non-farm sources. Poverty incidence remains high at 63 percent, even higher than the national rural poverty incidence. She further noted that the farms of the ARBs are relatively small (less than 2 hectares) and mostly rainfed in lowland and upland areas and most of the farms operate with limited area of mechanization and meager amount spent on material inputs for farm operations. This is one reason why agricultural income remains to be very low and limited (Bravo et al 2000).

A study done by Geron (1994) on the effect of CARP on the productivity of coconut and sugar in the Negros area emphasized that the mere transfer of land ownership and its operation in smaller parcels without the corresponding adoption of appropriate production technology had no impact on productivity. She also stressed the importance of sustainable credit delivery for CARP's beneficiaries. Since money from the Agrarian Reform Fund (ARF) has lower cost allowing LBP to provide credit to ARBs at lower rates, the program may not be able to sustain this in the future.

5. Impact of Agrarian Reform on Poverty

To assess the impact of agrarian reform on poverty, income-based measures of poverty, specifically poverty incidence, poverty gap index, real per capita income are used. In addition, non-income based measures are also examined. Changes between 1990 and 2000 in these indicators are used to determine improvements or deterioration over time. Furthermore, differences in the indicators between agrarian reform beneficiaries (ARBs) and non-agrarian reform beneficiaries (non-ARBs) are examined to determine whether ARBs are better off or worse off than non-ARBs.

5.1 Findings from the CARP-IA Survey

Description of the Sample

There are 1,854 households in the panel data. There were respondents from all regions except the Autonomous Region of Muslim Mindanao (ARMM). Forty percent of the respondents were taken from the Luzon area, another 40% from the Visayas area and 20% from the Mindanao area. Most of the respondents come from the Western Visayas Region – 15%, and Cagayan Valley – 14.3%. Eastern Visayas and Southern Tagalog are each represented by 10% of the total sample respondents. Central Mindanao and CAR are the least represented regions in the sample with only 1.8% of the respondents coming from each region.

Description of ARBs

Location

The variable v12 corresponding to ARB status in the 2000 "Comprehensive Agrarian Reform Program Impact Assessment" survey was used to determine who among the respondents are agrarian reform beneficiaries. There were only 1,834 households in the survey that were examined for their ARB status. Twenty respondents were deleted from the sample due to data encoding error of variable v12.

There are 853 ARB households out of the 1,834 sample households, representing about 47% of the total households surveyed. In terms of the proportion of ARB households to the number of sample households in the region, Central Luzon is found to have the largest proportion of ARB households while CAR and Central Visayas (23.5%) have the least. Of the 853 ARB households, 22% are from Cagayan Valley and 12% each are from Central Luzon and Western Visayas. The least number of ARBs are found in CARAGA (2.1%), Northern Mindanao (1.5%), Central Mindanao (1.2%) and CAR (0.9%) (Table 3).

Table 3. Distribution of ARB and Non-ARB Households by Geographical Location

Region	Distribution			Proportion	
	Total	NARB	ARB	NARB	ARB
Philippines	**100.0**	**100.0**	**100.0**	**53.5**	**46.5**
CAR	1.9	2.7	0.9	76.5	23.5
Ilocos	5.5	4.8	6.3	46.5	53.5
Cagayan Valley	14.4	8.3	21.5	30.7	69.3
Central Luzon	7.6	3.5	12.3	24.5	75.5
Southern Tagalog	10.7	12.7	8.4	63.5	36.5
Bicol	8.1	7.0	9.3	46.6	53.4
Western Visayas	14.8	17.0	12.3	61.4	38.6
Central Visayas	5.6	8.0	2.8	76.5	23.5
Eastern Visayas	11.6	14.6	8.1	67.5	32.5
Western Mindanao	5.8	6.6	4.9	60.7	39.3
Northern Mindanao	1.9	2.2	1.5	62.9	37.1
Southern Mindanao	8.1	8.0	8.3	52.3	47.7
Central Mindanao	1.9	2.4	1.2	70.6	29.4
CARAGA	2.2	2.2	2.1	55.0	45.0

Household Size

For both ARBs and non-ARBs, the average household size is 5 including the head of the family, his spouse, children and other members within the household.

Size of Landholding

On the average, households own about 3.7 hectares of land. ARBs own larger lands than non-ARBs with an average landholding of 4.45 hectares against only 2.86 hectares for non-ARBs (Table 4).

Fifty two percent of the ARBs own 2 hectares or less. About one-fourth of the ARBs own less than 1 hectare, while another one-fourth own more than 1 hectare but less than 2 hectares. On the other hand, 78 percent of the non-ARBs own less than 2 hectares. More than half of non-ARBs own less than 1 hectare.

Table 4. Size of Landholding

Total	**1834**	**100.0**
Less than 1 ha	836	45.6
1 to less than 2 has	374	20.4
2 to less than 3 has	238	13.0
3 to less than 5 has	231	12.6
5 to less than 7 has	77	4.2
7 to 10 has	34	1.9
More than 10 has	44	2.4
NARB	**981**	**100.0**
Less than 1 ha	617	62.9
1 to less than 2 has	146	14.9
2 to less than 3 has	77	7.8
3 to less than 5 has	73	7.4
5 to less than 7 has	30	3.1
7 to 10 has	22	2.2
More than 10 has	16	1.6
ARB	**853**	**100.0**
Less than 1 ha	219	25.7
1 to less than 2 has	228	26.7
2 to less than 3 has	161	18.9
3 to less than 5 has	158	18.5
5 to less than 7 has	47	5.5
7 to 10 has	12	1.4
More than 10 has	28	3.3

Number of Years being ARB

The average number of years that ARB households have benefited from agrarian reform is 17 years.

Table 5. Length in Years Benefited from Agrarian Reform Program

Length in Years	Number	Percent Distribution
ARB Households	**695**	**100.0**
At Most 5	94	13.5
6-10	120	17.3
11-15	158	22.7
16-20	92	13.2
21-25	82	11.8
26-30	106	15.3
31-35	14	2.0
More than 35	29	4.2

Table 5 shows the number of years that the households have been installed as ARBs for those households who responded to this question. In 2000, 13.5% of the ARBs have been beneficiaries for at most 5 years, while 17.3% have been ARBs for 6

to 10 years. About 23% have been ARBs for 11-15 years. 46.5% have benefited from earlier land reforms and have been ARBs for more than 15 years.

Average Income by Source

The average income of ARBs is 23% higher than the average income of non-ARBs. The average household income for the year 1990 are P49,594 for ARBs and P39,142 for non-ARBs. Average household incomes for the year 2000 are P98,653 for ARBs and P76,156 for non-ARBs (Table 6a).

A large part of total income is sourced from farming. However, the share of farm income has declined from 1990 to 2000. Still, more than half of total income of ARBs comes from farming. In contrast, more than half of total income of non-ARBs comes from non-farm sources.

In 1990, almost 71% of the total income of all farmers is sourced from farming. The average farm income of all farmers is P32,008 (Table 6b). The average farm income of the ARBs is P36,246 which is 72.1% of their total income. On the other hand, the average farm income of non-ARBs is P28,213 which is almost 69% of their total income.

In 2000, the average farm income of ARB households is P67,761. More than half (61.5%) of their total income is sourced from the farm. In comparison, the average farm income of non-ARBs is P46,508, which is 45% of its total income.

The average farm income of ARB households has risen by 87% from 1990 to 2000. In contrast, the average farm income of non-ARBs increased by 65% during the same period.

In 1990, average off-farm income for ARBs is P7,555, which is relatively higher than the average non-ARB income of P6,442. For both ARBs and non-ARBs, share of off-farm income is minimal. This is true as well for the average off-farm income for ARBs and Non-ARBs in 2000(1.7% and 2.4%, respectively). Average off-farm income for ARBs is P6,878 which is slightly higher than the average non-ARB income of P6,370.

In 1990, the average non-farm income of ARB households is P28,780 while average non-ARB income is P22,348. Non-farm incomes of ARB and non-ARB households are 24.5% and 26.6% of their respective total income.

In 2000, the average non-farm income of ARB households is P49,419, which is almost double as much as in 1990 while average non-ARB non-farm income is P51,057, which is more than twice in 1990. Share of non-farm income of 52.7% to total for non-ARBs is higher than the non-farm income share of 36.7% to total income for ARBs.

In addition, major sources of income of ARBs and non-ARBS in 1990 are from their farms. In 2000, major source of income of ARBs is from their farms while non-ARBs get their income mainly from non-farm sources.

The incidence of households being agrarian reform beneficiaries is positively linearly related to their income (point-biserial correlation coefficient =0.08 with p-value=0.0004). This indicates that agrarian reform beneficiaries are more likely to have higher annual incomes than non-ARBs.

Table 6a. Average Income of Households by Source in 2000

Source of Income	Average Income	Share (%)
Total	**86,608**	**100.0**
NARB	76,156	100.0
ARB	98,653	100.0
Farm	**57,407**	**53.8**
NARB	46,508	45.1
ARB	67,761	61.5
Off Farm	6,591	**2.0**
NARB	6,370	2.4
ARB	6,878	1.7
Non-Farm	**50,324**	**44.2**
NARB	51,057	52.7
ARB	49,419	36.7

Table 6b. Average Income of Households by Source in 1990

Source of Income	Average Income	Share (%)
Total	**43,997**	**100.0**
NARB	39,142	100.0
ARB	49,594	100.0
Farm	**32,008**	**70.6**
NARB	28,213	68.9
ARB	36,246	72.1
Off Farm	6,898	3.9
NARB	6,442	4.5
ARB	7,555	3.4
Non-Farm	**25,181**	**25.5**
NARB	22,348	26.6
ARB	28,780	24.5

The average nominal income of households among ARB households in 1990 is 43,594, higher than the average income of non ARBs with PhP39,142 (Table 7). Average nominal incomes of both ARB and non-ARB households are much higher in 2000. Average income of ARB households is PhP98,653 while average income of non-ARB households is PhP76,156, lower than the average income of ARBs.

Table 7. Average Income of Households in Current Prices

Status	1990	2000
Total	**43,997**	**86,608**
NARB	39,142	76,156
ARB	49,594	98,653

In Table 8, the average real income of ARB households based on 1994 prices is PhP73,488 in 1990 while the average real income of non-ARBs is lower at PhP57,802. In year 2000, the average real income of ARB households decreased to PhP64,626. The average real income of non-ARB households decreased as well to PhP50,258.

Table 8. Average Real Income in 1994 Prices

Status	1990	2000
Total	**65,093**	**56,938**
NARB	57,802	50,258
ARB	73,488	64,626

The average real per capita income based in 1994 prices of ARB households is PhP12,905 in the year 1990 (Table 9). Average real per capita income of non-ARB households is lower at PhP12,254. In year 2000, both average real per capita incomes of ARB and non-ARB households are lower than in 1990. Average real per capita income of non-ARBs is PhP11,312 while average real per capita income of ARBs is PhP14,485.

Table 9. Average Real Per Capita Income in 1994 Prices

Status	1990	2000
Total	**12,562**	**12,786**
NARB	12,254	11,312
ARB	12,905	14,485

Average Expenditure by Commodity Group

Average total expenditure of households is larger for ARBs by 8.5% than for non-ARBs (Table 10). Compared to non-ARBs, ARBs spend more on food, health and clothing, but less on education. More than 60% of total expenditure is spent on food, with ARBs allocating a slightly greater proportion than non-ARBs.

The average total expenditure of households in 1990 is P24,471 (in current prices). It went up to P56,805 in 2000. The ARBs have an annual expenditure of P26,507 in 1990, slightly higher than the P22,700 average household expenditures of non-ARBs. Total expenditure of ARBs in 2000 is P59, 290, more than double their total expenditures in 1990. For non-ARBs, the average household expenditure in 2000 is slightly lower at P54,645.

In 1990, the families have spent an average of P12,864 for their food alone. This is more than half (52.6%) of their total expenditures. A small portion of their total expenditures are allotted for their children's education which is 11.2% while only 6.8% and 4.6% are spent for their clothing and health care, respectively. Comparatively, the families have spent almost P 36,000 on the average for their food alone in year 2000. This is 63.2% of the household total expenditures while only 11.8% of their total expenditures are allotted for their children's education while only 7.7% are spent for their health care. Expenditure on clothing is minimal at 4.3%.

Of the total expenditure of the ARB families in 1990, 52.1% is spent for food, that is P13,798, while 53.1% is spent by the non-ARB families on food, that is P12,052. On the other hand, households who benefited from the agrarian reform have an average expenditure on food of P37,704 in 2000 that is, 63.6% of their total expenditures, while non-agrarian reform beneficiaries spent P34,282 on their food which is 62.7% of their total expenditures.

A small portion of the ARB and non-ARB families' total expenditures in 1990 is allotted to their children's education. ARB families spent an average of P3,103 which is only 11.7% of their total expenditures while non-ARB families spent only 10.6% of their total expenditures that is, P2,403. In year 2000, ARBs allotted only 11.2% (P6,623) while non-ARBs allotted 12.3%, slightly higher than ARBs.

In 1990, a small portion of the total expenditures of ARBs is allotted to their clothing and health care, 4.2% and 8.5%, respectively, while non-ARBs have allotted only 4.3% and 7% on their clothing and health care.

In 2000, 11.2% of ARBs total expenditures are allotted to their children's education, 8.5% on health, and 4.2% on clothing. Non-ARBs have spent 12.3% on education, 7% on health and 4.3% on clothing.

Table 10. Average Expenditure by Commodity Group in 2000

Commodity Group	Average Expenditure	Share (%)
Total	**56,805**	**100.0**
NARB	54,645	100.0
ARB	59,290	100.0
Food	**35,874**	**63.2**
NARB	34,282	62.7
ARB	37,704	63.6
Education	**6,685**	**11.8**
NARB	6,739	12.3
ARB	6,623	11.2
Clothing	**2,428**	**4.3**
NARB	2,365	4.3
ARB	2,501	4.2
Health	**4,370**	**7.7**
NARB	3,811	7.0
ARB	5,014	8.5

The 1990 expenditure of households is positively associated with the status of households being ARBs or not with a correlation coefficient of 0.08. Though relatively small, the association is significant with probability of 0.0008 at 5% level of significance. In 2000, expenditure of households is positively associated with the status of households being ARBs or non-ARBs with correlation coefficient of 0.05 and significance probability of 0.03 that is significant at the 5% level of significance. This implies that ARBs tend to have higher household expenditures than non-ARBs.

Poverty Profile of ARB Households

To determine the proportion of poor households, regional rural income thresholds for the year 2000 were obtained using 2000 regional inflation rates to project the 1997 official rural income threshold estimates from NSCB (Table 11). Poor households are defined to be households whose annual per capita income falls below the required annual per capita income to provide for the minimum basic food and non-food requirements.

Table 11. Poverty Thresholds, 1990 and 2000

REGION	1990	2000
CAR	7,308	14,789
Region 1	7,012	14,167
Region 2	5,963	11,616
Region 3	7,172	12,763
Region 4	7,000	14,417
Region 5	5,361	12,561
Region 6	5,461	12,665
Region 7	4,502	10,510
Region 8	4,652	10,068
Region 9	5,454	11,256
Region 10	5,680	12,217
Region 11	5,905	11,648
Region 12	6,314	12,393
ARMM	.	13,978

Using this criterion, there are 930 poor households in the sample for 2000. This is about 51% of the 1,820 households considered for analysis. Of the total poor households, 41% are agrarian reform beneficiaries. The incidence of poverty among ARBs is lower as compared to non-ARBs. About 45.1% among the ARBs are poor while non-ARBs poor are higher at 56.3% (Table 12).

Furthermore, the incidence of poverty is prevalent in Northern Mindanao where 82% of all households covered were found to be poor. Poverty incidence is relatively high in Western Mindanao. Among the households in Northern Mindanao, almost 73% are poor. On the other hand, Central Luzon has the lowest poverty incidence with 31.4%, followed by Central Mindanao with 35.3%.

Among the ARBs, Northern Mindanao has the highest poverty incidence where 91.7% of the households living in the region are poor followed by Western Visayas with almost 66.7% poor households. Central Luzon has the lowest poverty incidence among the ARBs both with 30.8%.

For non-ARBs, poverty incidence is highest in Northern Mindanao (77.3%) while Central Luzon and Central Mindanao still have the lowest poverty incidence both with 33.3%.

Table 12. Poverty Incidence by Location

Region	Total				NARB				ARB			
	Poor		Non-poor		Poor		Non-poor		Poor		Non-poor	
	Dist	Prop	Dist	Prop	Dist	Prop	Dist	Prop	Dist	Prop	Dist	Prop
	100.0	**51.1**	**100.0**	**48.9**	**100.0**	**56.3**	**100.0**	**43.7**	**100.0**	**45.1**	**100.0**	**54.9**
CAR	1.5	42.4	2.1	57.6	1.6	36.0	3.8	64.0	1.3	62.5	0.6	37.5
Ilocos	6.7	61.4	4.4	38.6	5.5	63.8	4.0	36.2	8.4	59.3	4.7	40.7
Cagayan Valley	10.1	36.2	18.7	63.8	5.5	37.0	12.0	63.0	16.8	35.8	24.8	64.2
Central Luzon	4.6	31.4	10.6	68.6	2.0	33.3	5.2	66.7	8.4	30.8	15.5	69.2
Southern Tagalog	11.1	53.1	10.2	46.9	12.0	53.7	13.4	46.3	9.7	52.1	7.3	47.9
Bicol	9.7	61.2	6.4	38.8	8.2	65.2	5.6	34.8	11.8	57.7	7.1	42.3
Western Visayas	15.8	54.2	13.9	45.8	19.3	63.9	14.1	36.1	10.8	39.0	13.8	61.0
Central Visayas	6.0	54.9	5.2	45.1	8.6	60.3	7.3	39.7	2.4	37.5	3.2	62.5
Eastern Viasyas	13.7	59.9	9.6	40.1	16.2	62.2	12.7	37.8	10.0	55.1	6.7	44.9
Western Mindanao	8.3	72.6	3.3	27.4	8.9	76.6	3.5	23.4	7.3	66.7	3.0	33.3
Northern Mindanao	3.0	82.4	0.7	17.6	3.1	77.3	1.2	22.7	2.9	91.7	0.2	8.3
Southern Mindanao	8.3	51.7	8.1	48.3	7.7	53.8	8.5	46.2	9.2	49.3	7.8	50.7
Central Mindanao	1.3	35.3	2.5	64.7	1.5	33.3	3.8	66.7	1.0	40.0	1.3	60.0
CARAGA			4.5	100.0			5.2	100.0			3.9	100.0

There has been a decline in the poverty incidence among ARB households from 47.6% in 1990 to 45.2% in 2000 (Table 13). In contrast, there has been an increase in the proportion of poor households among non-ARBs from 55.1% in 1990 to 56.4% in 2000. These changes in the poverty incidence has led to a wider difference between the poverty incidence of the two groups from 7.5 percentage points in 1990 to 11.2 percentage points in 2000.

Table 13. Poverty Incidence in 1990 and 2000

	1990	2000
ARB	47.6	45.2
Non-ARB	55.1	56.4

Poverty gap is the difference between the poverty threshold and the average income of the poor. The poverty gap index is the ratio of the poverty gap to the poverty threshold. This provides a measure of the depth of poverty. Table 14 shows

that the poor ARBs are less poor than the poor non-ARBs, as indicated by their lower poverty gap index. Over time, there has been little change in the poverty gap index.

Table 14. Poverty Gap Index in 1990 and 2000

	1990	2000
ARBs	.4922	.4923
Non-ARBs	.5250	.5234

Movements in and out of Poverty

Of the 838 ARBs, 399 were poor in 1990, of which 248 (62%) of them remained poor in 2000 while 151 (38%) became non-poor (Table 15). Of the 439 ARBs who were non-poor in 1990, 131 (30%) became poor and 308 (70%) remained non-poor.

On the other hand, of the 934 non-ARBs, 515 families were poor and 419 families were non-poor in 1990. Of the 515 poor non-ARBs in 1990, 362 (70%) remained poor in 2000 and 153 (30%) became non-poor in 2000. Of the 419 non-poor families in 1990, 165 (39%) families remained poor and 254 (61%) families became poor in 2000.

A greater proportion of ARBs who were poor in 1990 became non-poor in 2000 compared to non-ARBs (38% vs. 30%). Moreover, a smaller proportion of ARBs who were non-poor in 1990 became poor in 2000 relative to non-ARBs (30% vs. 39%). These suggest that being an ARB somehow improves ones chances of moving out of poverty if one is poor, and help one who is non-poor from falling into poverty.

Table 15. Poverty Status in 1990 & 2000

2000	1990		Total
	Poor	Non-Poor	
Total	**914**	**858**	**1,772**
NARB	515	419	934
ARB	399	139	838
Poor	**610**	**296**	**906**
NARB	362	165	527
ARB	248	131	379
Non-Poor	**304**	**562**	**866**
NARB	153	254	407
ARB	151	308	459

Households' Perception of their Poverty Status

In spite of being beneficiaries of the Agrarian Reform Program, many of ARB families still felt that they are poor. About 44% of the ARBs felt that they are either

poor or very poor. This, however, is lower than the corresponding 57% for non-ARBs.

Among the poor (classified as such based on income) agrarian reform beneficiaries, 52.8% perceived that they are poor or very poor while 63% of the classified poor non-ARBs perceived that they are poor or very poor.

Almost 35% of the classified poor ARB families felt they have fair condition and 12.7% perceived that they have good or very good conditions. Among the poor non-ARBs, 28.6% perceived they have fair condition while only 8.46% felt they have good or very good conditions.

Among the classified non-poor non-ARB households, 39.4% perceived that they have fair condition while 39.9% still felt that they are poor or very poor. In addition, only 20.7% perceived that their conditions are either good or very good. Among the classified non-poor ARB households, 28.6% still felt that they are poor or very poor, lower than the classified non-poor non-ARB families. On the other hand, around 71.4% of the non-poor families not benefiting from agrarian reform perceived that they have fair, good or very good conditions (Table 16).

While there seems to be a strong correlation between income-based measure of poverty and household's perception of poverty, Table 16 suggests that there are factors other than income that determines a household's perception of being poor or non-poor.

Table 16. Households' Perception of their Socio-Economic Conditions, 2000

Status	Perception	Poor		Non-poor		Total	
		Number	Percent	Number	Percent	Number	Percemt
NARB	**Total**	707	**100.0**	251	**100.0**	958	**100.0**
	Very Poor	57	8.1	14	5.6	71	7.4
	Poor	388	54.9	86	34.3	474	49.5
	Fair	202	28.6	99	39.4	301	31.4
	Good	54	7.6	50	19.9	104	10.9
	Very Good	6	0.8	2	0.8	8	0.8
ARB	**Total**	523	**100.0**	311	**100.0**	834	**100.0**
	Very Poor	38	7.3	5	1.6	43	5.2
	Poor	238	45.5	84	27.0	322	38.6
	Fair	181	34.6	146	46.9	327	39.2
	Good	62	11.9	72	23.2	134	16.1
	Very Good	4	0.8	4	1.3	8	1.0

Asked how being an agrarian reform beneficiary has changed their economic conditions, 57% said that their economic conditions have improved while 37% said that their conditions remained unchanged. Only 6% said that their conditions worsened since they became ARBs (Table 17).

About half of those classified as poor said that they are better off because of agrarian reform, while almost 70% of the non-poor said they are better off.

Table 17. Household's Economic Condition, 2000

Status		Poor		Nonpoor		Total	
		Number	Percent	Number	Percent	Number	Percent
ARB	**Total**	**505**	**100.0**	**303**	**100.0**	**808**	**100.0**
	Better	256	50.7	208	68.6	464	57.4
	Same	213	42.2	86	28.4	299	37.0
	Worse	36	7.1	9	3.0	45	5.6

Educational Attainment of the Household Head and the Members

In 2000, heads of ARB households have commonly finished only primary education. The same is true for heads of non-ARB households.

Among the total household members in year 2000, majority of the household members have no formal schooling. This comprises about 43% of the total households. Only 8.2% are graduates of elementary and about 11.5% are high school graduates. The proportion of college graduates among the household members is minimal at 6.9% (Table 18).

Members of ARB households tend to have higher educational attainment than members of non-ARB households. Among the ARB households, almost 40% of all the household members have not attended school. However, this is lower by about 6 percentage points than among the non-ARB household members. Almost 46% among non-ARB household members have not attended school.

The proportion of household members who finished elementary is 9.4% among ARBs, slightly higher than non-ARB household members with 7.2%. The proportion of ARB household members who finished high school is higher than the proportion of non-ARB household members. Around 14% of ARB household members have graduated from high school while 9.5% among non-ARB household members are high school graduates.

With regards to the proportion of members who graduated from college, there is only a slight difference between the ARBs and non-ARBs. Among the ARB household members, 7% have graduated from college. In comparison, 6.8% among the non-ARB household members are college graduates.

Table 18. Educational Attainment of Household Members, 2000

Total	**18674**	**100.0**
None	7943	42.5
Elem Undergraduate	2430	13.0
Elem Graduate	1537	8.2
HS Undergraduate	1841	9.9
HS Graduate	2144	11.5
Vocational Undergraduate	82	0.4
Vocational Graduate	428	2.3
College Undergraduate	957	5.1
College Graduate	1280	6.9
Post Graduate	32	0.2
NARB	**9956**	**100.0**
None	4557	45.8
Elem Undergraduate	1360	13.7
Elem Graduate	721	7.2
HS Undergraduate	971	9.8
HS Graduate	946	9.5
Vocational Undergraduate	32	0.3
Vocational Graduate	202	2.0
College Undergraduate	479	4.8
College Graduate	674	6.8
Post Graduate	14	0.1
ARB	**8718**	**100.0**
None	3386	38.8
Elem Undergraduate	1070	12.3
Elem Graduate	816	9.4
HS Undergraduate	870	10.0
HS Graduate	1198	13.7
Vocational Undergraduate	50	0.6
Vocational Graduate	226	2.6
College Undergraduate	478	5.5
College Graduate	606	7.0
Post Graduate	18	0.2

With regards to the average educational attainment of household heads, non-poor household heads have higher educational attainment than poor household heads. On the average, household heads belonging to the poor families are elementary graduates while those belonging to the non-poor families are high school graduates. Both the poor ARBs and non-ARBs are mostly elementary graduates. On the other hand, both the non-poor agrarian reform beneficiaries and non-agrarian reform beneficiaries are commonly high school graduates (Table 19).

Table 19. Average Educational Attainment of Household Heads

Status	Poor	Non-poor
Total	**Elementary Graduate**	**High School Undergraduate**
NARB	Elementary Graduate	High School Undergraduate
ARB	Elementary Graduate	High School Undergraduate

Among the total households members whose age are at least 12 years old, 83.1% are at least elementary graduates in 2000, higher than the 73.2% in 1990. Among the members of ARB households who are 12 years old and above, 74.8% were at least elementary graduates in 1990. This is 10 percentage points lower in 2000 where 83% were at least elementary graduates. On the other hand, among the members of non-ARB families belonging to the same age group in 1990, 71.4% were at least elementary graduates, slightly lower than the proportion of ARB members of the same year. In year 2000, almost 82% of non-ARB children were at least elementary graduates, much higher than in 1990 (Table 20).

Table 20. Proportion of at Least Elementary Graduates Among 12Years & Above

Status	1990		2000	
	Number	Percent Distribution	Number	Percent Distribution
NARB	1034	71.41	1304	81.76
ARB	1234	74.79	1132	84.73
Total	2268	73.21	2436	83.11

Among the household members who are at least 16 years old, almost 44% were at least high school graduates in 1990 while 56% were at least high school graduates in 2000. The proportion of ARB household members who are at least high school graduates in 1990 is almost 45%, much lower than in 2000 with 57.6%. Among non-ARB children, about 43% were at least high school graduates in 1990 while 54.5% were at least high school graduates in 2000. In both years, the proportion of ARB children who were at least elementary graduates is slightly higher than non-ARB children (Table 21).

Table 21. Proportion of at Least High School Graduates Among 16 Years & Above

Status	1990		2000	
	Number	Percent Distribution	Number	Percent Distribution
NARB	350	42.68	580	54.46
ARB	327	44.98	520	57.59
Total	448	43.94	1100	55.89

The data show that members of ARB households tend to have higher educational attainment than members of non-ARB households, suggesting that ARB households are able and did, in fact, invest more on human capital.

Employment Status of the Household Head

In 2000, 7.4% of the household heads are unemployed. Unemployment rate is higher for non-ARBs (8.1%) than for ARBs (5.5%).

ARB heads for both poor and nonpoor households are most commonly employed, with 93% poor heads employed and 96% nonpoor heads employed (Table 22).

Heads for both poor and nonpoor non-ARB households are also commonly employed. About 92% of heads are employed for both poor and nonpoor non-ARB households.

Table 22. Employment Status of Poor and Nonpoor Household Heads

Status	Number		Distribution		Proportion	
	Poor	Nonpoor	Poor	Nonpoor	Poor	Nonpoor
Total	**1232**	**602**	**100.0**	**100.0**	**67.2**	**32.8**
Unemployed	92	34	7.5	5.6	73.0	27.0
Employed	1140	568	92.5	94.4	66.7	33.3
NARB	**708**	**273**	**100.0**	**100.0**	**72.2**	**27.8**
Unemployed	57	22	8.1	8.1	72.2	27.8
Employed	651	251	91.9	91.9	72.2	27.8
ARB	**524**	**329**	**100.0**	**100.0**	**61.4**	**38.6**
Unemployed	35	12	6.7	3.6	74.5	25.5
Employed	489	317	93.3	96.4	60.7	39.3

About three fourths of the households have both head and spouse employed. The proportion of households with head and spouse both employed is 78% for nonpoor households and 75% for poor households (Table 23).

Among ARBs, the proportion of households whose head and spouse are both employed is around 78% for nonpoor households which is slightly higher than the 73% for poor households.

Moreover, two-thirds of the households whose heads and spouses are employed are poor.

Table 23. Employment Status of Household Heads and their Spouses

Status	Number		Distribution		Proportion	
	Poor	Nonpoor	Poor	Nonpoor	Poor	Nonpoor
Total	**1232**	**602**	**100.0**	**100.0**	**67.2**	**32.8**
Head and Spouse Unemployed	36	17	2.9	2.8	67.9	32.1
Head or Spouse Employed	270	116	21.9	19.3	69.9	30.1
Head and Spouse Employed	926	469	75.2	77.9	66.4	33.6
NARB	**708**	**273**	**100.0**	**100.0**	**72.2**	**27.8**
Head and Spouse Unemployed	20	11	2.8	4.0	64.5	35.5
Head or Spouse Employed	146	48	20.6	17.6	75.3	24.7
Head and Spouse Employed	542	214	76.6	78.4	71.7	28.3
ARB	**524**	**329**	**100.0**	**100.0**	**61.4**	**38.6**
Head and Spouse Unemployed	16	6	3.1	1.8	72.7	27.3
Head or Spouse Employed	124	68	23.7	20.7	64.6	35.4
Head and Spouse Employed	384	255	73.3	77.5	60.1	39.9

Access to Potable Water

ARBs have greater access to potable water than non-ARBs (77.7% vs. 76.1%). The proportion of households who are agrarian reform beneficiaries with access to potable water in 2000 is 77.7%, slightly higher than the proportion of ARB families (74.6%) with access to potable water in 1990. On the other hand, the proportion of households who are not agrarian reform beneficiaries with access to potable water is 76% in 2000. This is 2 percentage points higher than the proportion of non-ARB families (74%) who have access to potable water in 1990 (Table 24).

Table 24. Access to Potable Water, 2000

Status	Non-Potable		Potable	
	Number	%	Number	%
Total	**424**	**23.2**	**1407**	**76.8**
NARB	234	23.9	745	76.1
ARB	190	22.3	662	77.7

Access to Sanitary Toilet

ARBs have greater access to sanitary toilet facilities than non-ARBs (75.7% vs, 72.1%). The proportion of households who are ARBs with access to sanitary toilet is 75%, much higher than the 1990 proportion of ARB families with access to sanitary toilet at 64.2%. The proportion of non-ARB households (72%) with access to sanitary toilet in 2000 is 12 percentage points higher than in year 1990, which is 60% (Table 25).

Table 25. Access to Sanitary Toilet

Status	Non-Sanitary		Sanitary	
	Number	%	Number	%
Total	**482**	**26.3**	**1350**	**73.7**
NARB	273	27.9	707	72.1
ARB	209	24.5	643	75.5

Ownership of Assets and House

Ownership of assets is an indicator of the household's economic well-being. In particular, certain assets are highly correlated with poverty status. For instance, Reyes (1998) finds that ownership of refrigerator is very strongly correlated with being non-poor.

In 1990, the proportion of ARB families who own TV is 27.2%, higher than the proportion of non-ARB families who own TV (Table 26).

The proportion of households who are agrarian reform beneficiaries who own TV is 53.7% in 2000. This is almost twice the proportion of ARBs who own TV in 1990. The proportion of households who are not agrarian reform beneficiaries who own TV is 49.4%, more than double the proportion of non-ARBs who own TV in 1990.

Table 26. Ownership of Television in 2000

Status	Without TV		with TV	
	Number	*Percent*	*Number*	*Percent*
Total	**891**	**48.6**	**943**	**51.4**
NARB	496	50.6	485	49.4
ARB	395	46.3	458	53.7

In 1990, the proportion of households, whether ARBs or not, who own refrigerator are fairly small. The proportion of ARB households who own a refrigerator is 10.9% while the proportion of non-ARB households who own a refrigerator is only 9.4% (Table 27).

In year 2000, the proportion of households who are agrarian reform beneficiaries that own a refrigerator is 27%, much higher than in 1990, while the proportion of households who are not agrarian reform beneficiaries who own refrigerator is 25.5%, almost triple the proportion of non ARBs who owns ref in 1990.

Table 27. Ownership of Refrigerator in 2000

Status	without Refrigerator		with Refrigerator	
	Number	Percent	Number	Percent
Total	**1,354**	**73.8**	**480**	**26.2**
NARB	731	74.5	250	25.5
ARB	623	73.0	230	27.0

In 1990, majority of the ARB households had used wood and light materials for their homes. The proportions of ARB families who used wood and light materials are 35.8% and 37.6% respectively. Only 18.2% among the ARB families have used concrete materials. Among the non-ARBs, 41.6% have used light materials and 36.5% have used wood materials. Only 15.8% on non-ARBs have used concrete materials.

In 2000, more than half (52.4%) of ARB households have concrete type of walling, almost three times as much in 1990. Only 23.7% among ARB households have wood type of walling and 21.7% have used light materials. On the other hand, 43.1% among non-ARB households have concrete type of walling which is less than the proportion of ARBs and 32.3% have used wood materials while 23.3% have used light materials (Table 28).

Table 28. Type of Housing Materials in 2000

Status	Concrete		Wood		Light		Others	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	**870**	**47.5**	**518**	**28.3**	**413**	**22.5**	**32**	**1.7**
NARB	423	43.2	316	32.2	228	23.3	13	1.3
ARB	447	52.4	202	23.7	185	21.7	19	2.2

Crops Planted

The most common seasonal crops planted by the farmers for the year 2000 are rice and corn. During the first cropping season, more than half (56.8%) of the total farmers who plant rice are Agrarian Reform Beneficiaries. A large proportion of the ARBs (79.2%) are planting rice while only 15.5% of them are planting corn. Among the non-agrarian reform beneficiaries, 76.7% are planting rice while 17.2% are planting corn (Table 29).

Table 29. Crops Planted (June - November 1999)

Crops Planted	NARB			ARB			Total
	Number	Col %	Row%	Number	Col %	Row%	Number
Total Crops	**772**	**100.0**	**44.0**	**983**	**100.0**	**56.0**	**1755**
Rice	592	76.7	43.2	779	79.2	56.8	1371
Corn	133	17.2	46.7	152	15.5	53.3	285
Coconut	1	0.1	100.0		0.0	0.0	1
Sugarcane	2	0.3	40.0	3	0.3	60.0	5
Banana	1	0.1	33.3	2	0.2	66.7	3
Coffee	1	0.1	100.0		0.0	0.0	1
Pineapple		0.0	0.0	1	0.1	100.0	1
Peanut	6	0.8	42.9	8	0.8	57.1	14
Onion	1	0.1	20.0	4	0.4	80.0	5
Vegetables	25	3.2	50.0	25	2.5	50.0	50
Fruit trees		0.0	0.0	1	0.1	100.0	1
Root Crops	10	1.3	58.8	7	0.7	41.2	17
Abaca		0.0	0.0	1	0.1	100.0	1

During the second cropping season, 58.1% of the total farmers who plant rice are ARBs. Among the ARBs, 76.4% of them are planting rice, slightly higher than the proportion (73.9%) of non-ARBs who plant rice. The proportion of ARBs who are planting corn is only 17.1% while the proportion of non-ARBs that plant corn is slightly higher at almost 20% (Table 30).

Table 30. Crops Planted (December 1999 - March 2000)

Crops Planted	NARB			ARB			Total
	Number	Col %	Row%	Number	Col %	Row%	Number
Total Crops	**593**	**100.0**	**42.8**	**794**	**100.0**	**57.2**	**1387**
Rice	438	73.9	41.9	607	76.4	58.1	1045
Corn	118	19.9	46.5	136	17.1	53.5	254
Sugarcane		0.0	0.0	3	0.4	100.0	3
Peanut	5	0.8	33.3	10	1.3	66.7	15
Onion	2	0.3	50.0	2	0.3	50.0	4
Vegetables	23	3.9	44.2	29	3.7	55.8	52
Root Crops	7	1.2	50.0	7	0.9	50.0	14

The most common perennial crop among the farmers is coconut. Among the total farmers who are planting coconut, 51.1% are non-agrarian reform beneficiaries while 48.9% are agrarian reform beneficiaries. Among the ARB farmers, 52.6% are planting coconut, slightly lower than the proportion of non-ARBs planting coconut (59%) (Table 31).

Banana is also a common perennial crop among farmers. Among the total farmers who are planting banana, the proportion of non-ARBs (51.4%) is slightly higher than the proportion of ARBs (48.6%). However, only 14.4% among the ARB farmers are planting this crop while only 16.3% of non-ARBs plant banana.

Table 31. Perennial Crops Planted

Crops Planted	NARB			ARB			Total
	Number	Col %	Row%	Number	Col %	Row%	Number
Total Crops	**466**	**100.0**	**48.2**	**500**	**100.0**	**51.8**	**966**
Rice	17	3.6	37.8	28	5.6	62.2	45
Corn	13	2.8	48.1	14	2.8	51.9	27
Coconut	275	59.0	51.1	263	52.6	48.9	538
Sugarcane	11	2.4	34.4	21	4.2	65.6	32
Banana	76	16.3	51.4	72	14.4	48.6	148
Coffee	13	2.8	52.0	12	2.4	48.0	25
Peanut	3	0.6	30.0	7	1.4	70.0	10
Citrus	1	0.2	25.0	3	0.6	75.0	4
Onion		0.0	0.0	2	0.4	100.0	2
Tobacco	1	0.2	25.0	3	0.6	75.0	4
Vegetables	13	2.8	48.1	14	2.8	51.9	27
Fruit trees	21	4.5	35.0	39	7.8	65.0	60
Root Crops	19	4.1	48.7	20	4.0	51.3	39
Abaca	3	0.6	60.0	2	0.4	40.0	5

In general, among the farmers who are planting seasonal crops, the proportion of ARBs is slightly higher than the proportion of non-ARBs. On the other hand, among those farmers who plant perennial crops, the proportion of non-ARBs is slightly higher than the proportion of ARBs.

Farm Cultural Practices

Farmers commonly use chemical fertilizers to yield good and abundant crops. Almost three-fourths (74.1%) of farmers have adopted the use of such modern technology in improving yield. Of the total farmers engaged in the practice of using chemical fertilizers, more than half (55.9%) are agrarian reform beneficiaries. Also, among ARB farmers, almost 80% have adopted the use of chemical fertilizers while almost 70% of Non-ARB farmers are engaged in this practice (Table 32).

There are still more farmers engaged in the traditional way of manual plowing where about 66% of farmers still practice animal-drawn plowing. Among these traditional practitioners, 57.6% are ARB farmers. Slightly more than 70% of the

ARB farmers and 58.4% of the non-ARB farmers still practice animal-drawn plowing.

The use of chemicals to control pests and diseases on crops has become a popular practice among farmers. Almost 60% of farmers use chemicals to protect their crops from being damaged. Such practice is more common to ARB farmers; 57% of all farmers who use chemicals are ARBs. In addition, among the ARB farmers, 65% are engaged in such practice. The proportion of pesticide practitioners is slightly lower among non-ARB farmers. Less than half (47.5%) of non-ARB farmers are engaged in such practice.

The use of power tillers has also become a common practice among farmers where about 55% already make use of such modern technology. About 59% of these farmers are ARBs. Among ARBs, 62% use power tillers in farming while only 48% among Non-ARBs use power tillers.

Moreover, the use of certified seeds is becoming a popular practice among farmers. Near half of the farmers (45%) use certified seeds in farming. This proportion is slightly higher than the 43% farmers who use traditional varieties in farming. Still, more ARB farmers engage in these farming techniques than non-ARBs.

Table 32. Farm Cultural Practices

Farm Cultural Practices	Number			Proportion			Distribution4	
	NARB	ARB	Total	NARB	ARB	Total	NARB	ARB
Animal-Drawn Plot	596	810	1406	58.4	71.8	65.5	42.4	57.6
Power Tillers	484	700	1184	47.5	62.1	55.1	40.9	59.1
IPM	105	159	264	10.3	14.1	12.3	39.8	60.2
Four-Wheel Tractors	64	60	124	6.3	5.3	5.8	51.6	48.4
Chem. Pest & Disease Control	552	728	1280	54.1	64.6	59.6	43.1	56.9
Contour Plowing	15	17	32	1.5	1.5	1.5	46.9	53.1
Slash & Burn	54	42	96	5.3	3.7	4.5	56.3	43.8
Hedgerows	11	6	17	1.1	0.5	0.8	64.7	35.3
Crop Rotation	60	54	114	5.9	4.8	5.3	52.6	47.4
Mulching	18	22	40	1.8	2.0	1.9	45.0	55.0
HYVs	195	213	408	19.1	18.9	19.0	47.8	52.2
Azolla	6	10	16	0.6	0.9	0.7	37.5	62.5
Certified Seeds	393	569	962	38.5	50.5	44.8	40.9	59.1
Composting	79	105	184	7.7	9.3	8.6	42.9	57.1
Terracing	39	24	63	3.8	2.1	2.9	61.9	38.1
Chemical Fertilizer	705	892	1597	69.0	79.1	74.3	44.1	55.9
Cover Cropping	21	13	34	2.1	1.2	1.6	61.8	38.2
Traditional Varieties	417	487	904	41.9	43.6	42.8	46.1	53.9

To summarize, the use of machineries in farming is not a common practice among farmers. More farmers do manual plowing. The use of chemicals, such as fertilizers to increase yield and pesticides to protect their crops, has already been adopted by many farmers.

Among the 12 farming techniques enumerated in the survey, techniques not commonly practiced by farmers are azolla, hedgerows, contour plowing and cover cropping.

Land Productivity

Measure of land productivity is derived in this study by dividing the peso value of farm output over the total farm size. The average land productivity among the beneficiaries of agrarian reform is more than twice the average land productivity of non agrarian reform beneficiaries. The mean land productivity of ARBs is P20,429.87 per hectare while mean land productivity of non-ARBs is P8,032.36 per hectare (Table 33). The higher land productivity of ARBs could partly explain the observed lower poverty incidence among ARBs.

Table 33. Land Productivity (PhP/Ha)

Status	Average
NARB	8,032.36
ARB	20,429.87

5. 2 Models for Determining Poverty Status of Households

A logit model is estimated to determine significant factors affecting the poverty status of households in the year 2000. Among the variables considered to explain the poverty status are length in years that households have benefited from the agrarian reform program, whether they have received government assistance or not, household size, per capita land size within their ownership, educational attainment of the household head, poverty status in 1990, whether the community that they belong to is an agrarian reform community or not, and whether the land they till is irrigated or not.

The probability of a household being nonpoor is represented by the model:

$$P(nonpoor) = \frac{e^{0.26+0.11ARBYR-0.32V22+0.21HHEDUC+0.22V16A+1.08IRRI+0.54CREDIT}}{1+e^{0.26+0.11ARBYR-0.32V22+0.21HHEDUC+0.22V16A+1.08IRRI+0.54CREDIT}}$$

The model including these 8 characteristics aimed at explaining the poverty status of households is significant at the 5% level of significance with significance probability of 0.0001.

The Hosmer and Lemeshow goodness-of-fit test was performed to test for model adequacy. With a significance probability of 0.2308 of the model, there is no sufficient evidence to say that the model is not adequate. Thus, household characteristics considered for inclusion in the model adequately describe the tendency of households of being poor or nonpoor.

Chi-square test on the individual effects of each characteristic on poverty status was performed on the model. Effects of the characteristics were all found to be significant at the 5% level, except V16a (whether agrarian reform community or not) which is significant at the 10% level.

Table 34 shows parameter estimates using the maximum likelihood estimation technique and statistics on the individual variables in the model.

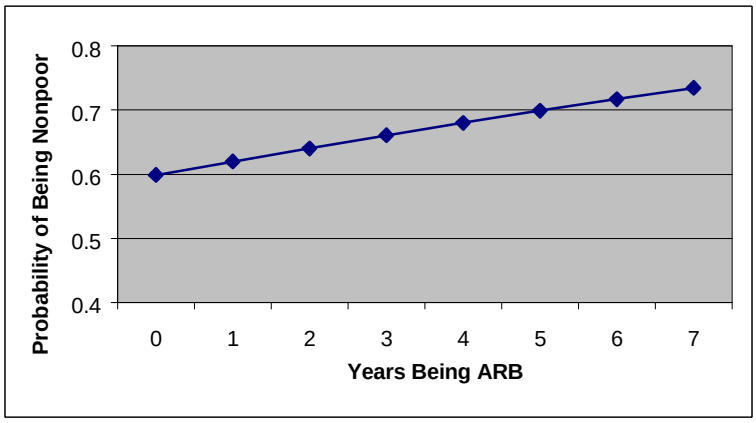
Table 34. Parameter Estimates of Logit Model

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate	Odds Ratio	Variable Label
INTERCPT	1	0.2644	0.1540	2.9480	0.0860	.	.	Intercept
ARBYR	1	0.1117	0.0267	17.5275	0.0001	0.134076	1.118	Length of years being ARB
V22	1	-0.3169	0.0256	153.2131	0.0001	-0.56433	0.728	Household Size
HHEDUC	1	0.2039	0.0346	34.7661	0.0001	0.192948	1.226	Educational Attainment of HH Head
V16A	1	0.2231	0.1330	2.8170	0.0933	0.051955	1.250	Agrarian Reform Community
IRRI	1	1.0836	0.1226	78.0672	0.0001	0.280109	2.955	Irrigated Land
CREDIT	1	0.5433	0.1134	22.9498	0.0001	0.148538	1.722	Access to Credit

Interpretation

ARBYR (Length of time being ARB). The length of years that ARB households have benefited from the agrarian reform program of the government increases their chances of being nonpoor by as much as 0.11 points, i.e., the likelihood of a household being nonpoor increases by as much units when the household has been an ARB for a longer period of time. Furthermore, each 5-year increase in the length of time that ARB households have benefited from CARP, renders an increase in probability of being nonpoor by approximately 0.014 to 0.022 units at an exponential but almost linear trend (see figure below). The largest increase in probability of being nonpoor is exhibited by the shift from 0 to 1 year with a 0.022 unit increase in probability. This implies that the advantages of being an ARB can already be felt by households even at an early period of 1 year. The increase in probability slowly dampens at each 5-year addition in the length of time that ARB households have benefited from agrarian reform. Minimal increase in probability of being nonpoor can be observed when the household has been a beneficiary of CARP for more than 35 years.

This suggests that a household's chances of being non-poor increases the longer the household has been an ARB. This could be because being an ARB allows the household to accumulate savings and physical capital as manifested by higher incomes (relative to non-ARBs) and ownership of consumer durables and other assets. Also, ARB households tend to invest more on human capital as shown by higher educational attainment of its members compared to non-ARB household members. These could have positive effects on the earning capacity of the household and consequently on household income.



V22 (Household Size). Poor households are characterized by a large family size. Households tend to be poorer as the number of its family members increases. The likelihood that a household with a large family size of being nonpoor is 0.73, which is 27 points lower than a household with a smaller family size.

HHEDUC (Educational Attainment of the Household Head). A head of the family who has attained a high level of education is likely to belong to a nonpoor household. The likelihood of a household, whose head has a high level of educational attainment, being nonpoor is around 22 points higher than of households with heads having a low level of educational attainment.

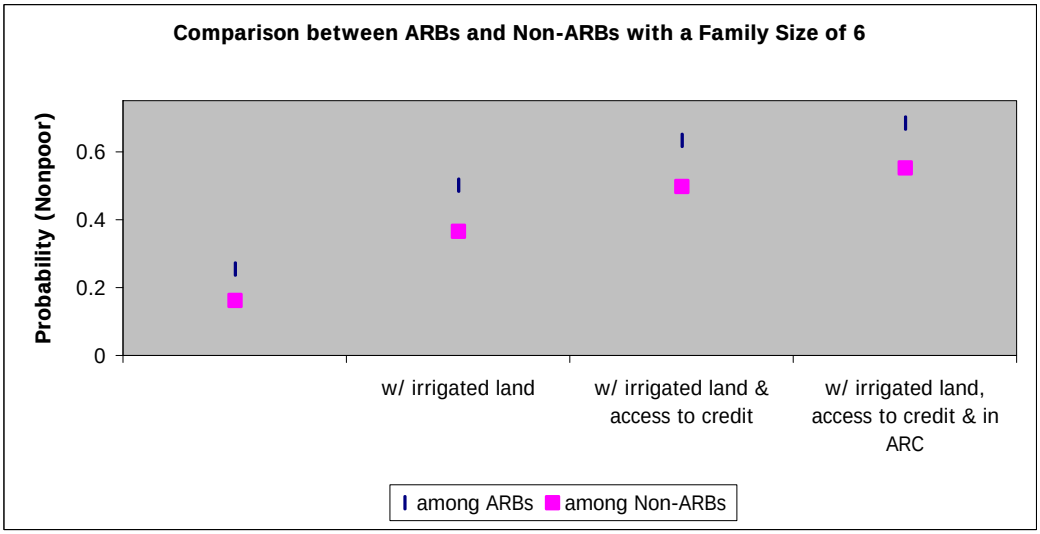
V16A (Agrarian Reform Community). A household living in a community that is an agrarian reform community is more likely to be nonpoor with odds ratio of 1.25. The probability that a household is nonpoor increases by 0.22 points when the household lives in an agrarian reform community.

IRRI (Irrigated Land). The type of land that farmers till helps determine the poverty status of the households. The probability of being nonpoor for farmers (households) increases by 1.08 points when they till irrigated land. Farmers who till irrigated lands are thrice (2.96 times) more likely to be nonpoor than those who till non-irrigated lands.

CREDIT (Credit Profile). Households who have access to credit are more likely to be nonpoor. The odds of a household being nonpoor is .72 points higher when the household has access to credit. A household is said to have access to credit if it was able to avail of credit, or did not avail of credit because it had no need to.

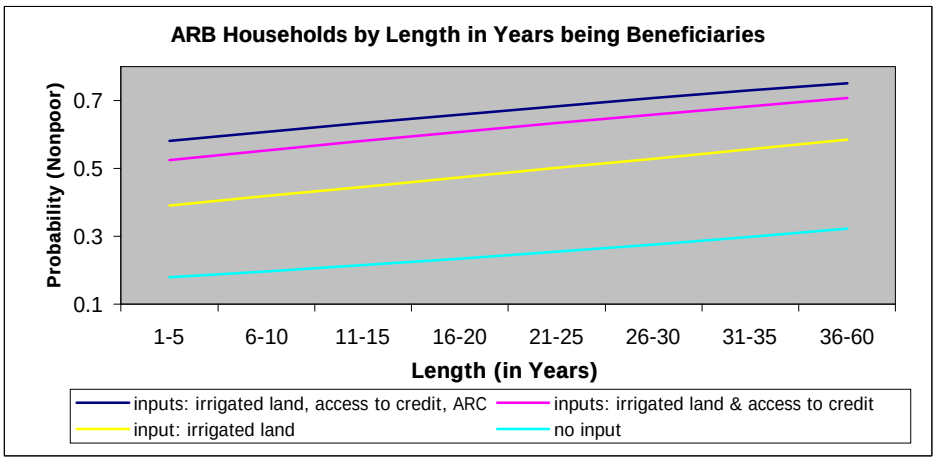
To compare the probability of being non-poor of ARBs and non-ARBs, the probability is computed using the estimated equation for a family of six and with the household head not having any schooling. Figure 1 shows that the probability of being non-poor is higher for ARBs than for non-ARBs. Given the same input, irrigation, credit and being in an agrarian reform community, ARBs consistently have higher chances of being non-poor.

Figure 1



To show the effect of credit, irrigation and being in an ARC on ARBs, the probability of being non-poor of an ARB with or without these inputs are computed using the estimated equation. Figure 2 shows the probability of being non-poor for households who are ARBS, with particular inputs. The probability of being non-poor for an ARB who has no credit, no irrigation and is not in an ARC is the lowest. When he is provided irrigation, his probability of being non-poor increases by 24 percent on the average. Furthermore, when he is give credit, his probability of being non-poor increases by 15 percent. Finally, when his community becomes an ARC, then his probability of being non-poor increases further by 5 percent.

Figure 2



The results indicate that being an ARB tend to increase one's chances of being non-poor. Moreover, we find that providing the necessary inputs like credit, irrigation and being in an agrarian reform community tend to further increase one's chances of being non-poor.

Model Classification

A probability level of 50% has been chosen as a cut-off level at which households will be classified as nonpoor based on the characteristics they possess. The 50% cut-off point was chosen since the model is after the percentage of observations correctly classified into their corresponding poverty status.

There are 541 out of the 810 actual nonpoor households that were classified as nonpoor based on model simulations. This is around 66.8% correctly classified nonpoor households (Table 35).

Moreover, 598 out of 853 actual poor households that were classified as poor based on model simulations. This is about 70% correctly classified poor households.

Around 32% of actual poor households are falsely classified as nonpoor households by the model while 31% actual nonpoor households are falsely classified as poor households.

On the overall, the model including the abovementioned household characteristics correctly classifies as much as 68.5% of the observations or households into their corresponding poverty status for the year 2000. The results also suggest that other variables, in addition to those included in the present model, may help explain further the poverty status of households.

Table 35. Actual vs. Simulated

Actual	Simulated	
	Nonpoor	Poor
Nonpoor	541	269
Poor	255	598

Regression Models

Two regression models have been constructed with nominal income of households for the year 2000 as the dependent variable. The explanatory variables considered for the first model were household characteristics such as whether they are agrarian reform beneficiaries, government service beneficiaries, whether they live in an agrarian reform community, educational attainment of the household head, and if they till irrigated lands. The second model used the same variables but used the years that households have been benefiting from the agrarian reform program in place of whether they are agrarian reform beneficiaries or not.

For model 1, the positive signs of the parameter estimates indicate an increase in income of households if they are of the desired characteristics (Table 36). This implies that households gain higher income and are thus better off when they are beneficiaries of the agrarian reform program, have received or are receiving assistance from the government, and they live in an agrarian reform community. In addition,

income also increases as household heads become more educated. Farmers who till irrigated lands also earn higher income. All household characteristics have probability values less 10% indicating that each characteristic has significant contribution to income of households for the year 2000.

Table 36. Parameter Estimates of Model 1

Dependent Variable: PCINC00

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	5	127087118944	25417423789	46.477	0.0001
Error	1812	990944397079	546878806.34		
C Total	1817	1.1180315E12			

Root MSE	23385.44005	R-square	0.1137
Dep Mean	19493.45344	Adj R-sq	0.1112
C.V.	119.96561		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|	Variable Label
INTERCEP	1	17059	1472.8923209	11.582	0.0001	Intercept
ARB00	1	3980.867795	1135.2634824	3.507	0.0005	Agrarian Reform Beneficiary
V74A	1	4060.534104	1197.8038315	3.390	0.0007	Government Service Beneficiary
PCHAS1	1	389.508560	216.67791213	1.798	0.0724	Per Capita Hectarage of Land
V22	1	-1807.032438	175.00200967	-10.326	0.0001	Household Size
HHEDUC	1	3197.044396	326.88258325	9.780	0.0001	Educational Attainment of HH Head

For model 2 as well, the positive signs of the parameter estimates indicate an increase in income (Table 37). Households who have received assistance from the government and live in an agrarian reform community gain higher income. Furthermore, income is also higher if farmers till irrigated lands. Income is higher for households with heads who have attained a high level of education. Moreover, households who have benefited from the agrarian reform program earn higher income. All the variables used in the model have significant contribution to income at 10% level of significance.

Table 37. Parameter Estimates of Model 2

Model: MODEL1
Dependent Variable: PCINC00

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	5	131310820683	26262164137	46.938	0.0001
Error	1656	926550783584	559511342.74		
C Total	1661	1.0578616E12			

Root MSE	23653.99211	R-square	0.1241
Dep Mean	19590.98496	Adj R-sq	0.1215
C.V.	120.73917		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|	Variable Label
INTERCEP	1	16569	1518.2359275	10.913	0.0001	Intercept
ARBYR	1	1374.799381	274.40119667	5.010	0.0001	Years being ARB
V74A	1	4097.074269	1265.3736526	3.238	0.0012	Government Service Beneficiary
PCHAS1	1	389.362664	218.94081127	1.778	0.0755	Per Capita Hectarage of Land
V22	1	-1771.712412	180.91398116	-9.793	0.0001	Household Size
HHEDUC	1	3267.116864	342.25628230	9.546	0.0001	Educational Attainment of HH Head

6. Impact of Shocks on Agrarian Reform Beneficiaries

While the APIS is not designed to look at CARP, it contains a few questions that may provide some indications of how ARBs cope with the economic crisis in 1997-1998 brought about the Asian financial crisis and the El Nino. The huge capital outflow in some of the East Asia countries and the ensuing depreciation of the regional currencies caused economies, to contract and unemployment to soar. The Philippines was one of the those affected by the financial crisis. Consequently, the industry and services sectors in the Philippines were heavily affected. On the other hand, the drought induced by the El Nino adversely affected the agriculture sector of the country.

The ARBs are defined as those who have acquired the agricultural land which they own through the CARP's land distribution program. Non-ARBs are those who own agricultural land but did not acquire this through CARP.

Coping with the Crisis

The Asian financial crisis that hit the country has caused a downturn in the Philippine economy. The negative impact brought about by the crisis has been felt down to the household level. Increasing prices of food and other basic commodities, loss of jobs and reduced incomes were among the problems that households needed to cope up with.

Both non-ARBs and ARBs have felt the increasing price of food and other basic commodities with 92% of non-ARBs and 89% ARBs saying that they have felt the increase.

The El Nino crisis has been felt more by ARB households. Around 84% of them claim that the crisis has affected them financially. A lower 79% of non-ARB households say that they have felt the effect of El Nino.

The problem of loss of job within the country and outside due to retrenchment were felt more by non-ARB households.

Reduction in wages was both felt by ARBs and non-ARBs (Table 38).

Table 38. Proportion of Families affected by Problems caused by the Financial Crisis

Proportion of Families affected by:	ARB	NARB
Increasing Price of Food and Other Basic Commodities	88.6	91.7
Loss of Job (Within the Country)	13.4	14.6
Loss of Job (due to retrenchment) of the migrant worker/overseas worker of the family	2.6	3.9
Reduced Wages	12.0	12.2
Drought or El Nino	83.6	78.8

In order to cope with the crises that had struck their families, many households have resorted to changing their eating patterns. Almost half (46.9%) of ARB households have altered their eating pattern while 43% of non-ARBs have resorted to such alternative (Table 39).

Moreover, members of their households have also worked overtime to raise the income of the family. Around 31% non-ARBs and 27% ARBs have engaged in such means of coping up.

A larger proportion of ARB households (9.3%) have pulled their children out of school compared to non-ARBs (5.9%). Moreover, a larger proportion of ARBs (10.4%) have also migrated to cities and other countries.

ARB households have benefited more from assistance coming from the government with 16% of them have been aided by the government while only 9% of non-ARBs received government assistance. A larger proportion of non-ARB households received assistance from their friends and relatives, while only 11.7% of ARBS received assistance from friends and relatives.

Table 39. Coping Strategies of ARB and Non-ARB Households

Proportion of Families who:	ARB	NARB
Changed Eating Pattern	46.9	43.0
Taken the Children Out of School	9.3	5.9
Household Members Migrated to the City or Other Countries	10.4	6.8
Received Assistance from Friends/Relatives Locally/Abroad	11.7	17.2
Received Assistance from the Government	15.7	8.8
Increased Working Hours	27.2	31.1

The findings from the 1998 Annual Poverty Indicators Survey show that agrarian reform beneficiaries are vulnerable to shocks. Having access to land is not enough to minimize consumption and income risks to agrarian reform households. Moreover, some of the coping strategies employed by households may have long-term impact on the their human capital.

7. Concluding Remarks

The results show that agrarian reform has had a positive impact on farmer-beneficiaries. It has led to higher real per capita incomes and reduced poverty incidence between 1990 and 2000. Compared to non-ARBs, ARBs tend to have higher incomes and lower poverty incidence. They also tend to fare better in terms of the other indicators of well-being. ARB households have higher access to safe water, and sanitation facilities. Members of ARB households tend to have higher educational attainment than members of non-ARB households.

Complementary inputs are necessary to maximize the benefits from agrarian reform. Irrigation, credit and government services tend to promote higher incomes. Moreover, agrarian reform communities tend to increase the chances of a farmer-beneficiary to be non-poor.

Given the results of this study, it is important that the agrarian reform program be completed as soon as possible. Moreover, agrarian reform communities should be expanded to benefit not just ARBs but non-ARBs as well. Infrastructure support should also be extended to farming communities. Credit and extension services by government agencies should also be made accessible to farmers.

The study also highlighted the vulnerability of farmers to shocks, particularly weather-related shocks. Owning land is not sufficient to minimize risks. While higher incomes from diversified sources and higher savings are effective towards minimizing risks, there is also a need for some safety nets, particularly for the very poor. These safety nets would ensure that those hit by shocks need not resort to coping mechanisms that would have long term negative impact on their human capital as well as their productive capacity.

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