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9. ABSTRACT

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A. Work Accomplished

1. Final determination of baseline survey objectives
2. Production of English interview schedule (questionnaire)
3. Pretest of English schedule (clarity, inconsistencies, flow defects)
4. Translation into Cebuano Binisaya, the language of interview
5. Retranslation from the Binisaya to English by a person unfamiliar with the project
6. Pretest of Binisaya schedule
7. Drawing the sample (a two-stage area probability sample, using PPS procedures with replacement of barangays (FSU's) and with ideal sub-sample size of 20 household respondents in 50 barangays)
8. Training of supervisors
9. Reconnaissance of area by supervisors and hiring of interviewers
10. Training of interviewers; mapping and listing households of sample barangays
11. Initiation and supervision of interviewing. Field editing
12. Completion of interviewing
13. Editing of completed schedules, home office
14. Coding of edited schedules
15. Beginning of tabulation of schedules

B. Preliminary Analysis of the Findings from the Baseline Survey (REMO-II)

Preliminary findings of the REMO-II are as follows:

1. The overwhelmingly majority of respondents stated that the occupation of the household head (and the main source of the household income) was farming or various kinds of farm or agricultural labor (including farm-animals such as chickens, pigs, cattle, and carabao). Fishing was also important, although more as a supplement to main income than as the main income source.

Most of the farms did not have irrigation, although the proportion with irrigation was much larger than in the western segment of the Province before the MORESCO-I electrification was available. The reason seems to be that the northeastern segment of the Province has a more rainy climate than the western segment because of greater exposure to the southwestern monsoons and because the coastal strip in the northeast is in some places narrower. This means that mountain streams are closer at hand to the limited coastal plots available for farming and are likely to generate sufficient water pressure for distribution over larger areas.

An increase in irrigation could lead to more intensive agriculture. At present however, the research team found only 30 irrigation units in 67 territorial clusters for which the information could be gathered

by reconnaissance or by interview with municipal officers knowledgeable in such matters.

These irrigated areas cover more than 560 hectares (whose main crop is entirely rice) out of 27,397.2 hectares of arable land or about 2 per cent. (The total land area involved also includes hectares devoted to permanent crops (not arable), to pasturage, to forest growth, and to all other hectarage such as mountain sides, streams, etc., and totals in all 212,194 hectares or 2,121.9 square kilometers or 819.3 square miles. Thus while the irrigated out of the total plowable area constitutes 2 per cent, it represents only 3/10 of one per cent of the total area.

Irrigated areas constitute a very small per cent of the arable and of the total areas. If electrification can increase the number of irrigated areas significantly, the necessary intensive labor involved in production of three rice crops per year would increase employment opportunities in the area of study for the resident households and might substantially increase farm family incomes.

2. Off-farm employment opportunities are extremely limited, not only for women, but for men also. Only three businesses of any scope have been established since January 1, 1977, in the entire set of 67 areas subject to household interview or covered in the questions addressed to municipal officers (mayors, social service workers, etc.). These businesses were a plywood processing plant in Lunao, Gingoog City, which employed 60 persons; The Kabulig Food Production Association of Gregorio Felaez Barangay, Balingasag Municipality, which is a quasi-cooperative tomato marketing organization of the people of the barangay including 110 persons; The Almon Theater (movies) in Balingasag Poblacion which employs 8 persons; and the Malibud Corn and Rice Mill which employs 10 persons. It should be observed that the Kabulig association pays only in terms of the prices it can get for the boxes of tomatoes turned over by its members during one or two tomato seasons of the year. Members grow tomatoes on their own land or on land they tenant.

Older businesses (established before January 1, 1977) employing more than 30 persons were the Anakan Lumber Company (ALCO) of Anakan Barangay, Gingoog City, which employs 300 persons and the Mindanao Plywood Corporation (Minply Co.) of Lunao Barangay, which employs 300 persons (which more recently started the Klin Dry plywood factory mentioned previously).

Smaller businesses (5 - 29 persons) include a copra buying company of Medina Poblacion (Granexport) which employs 20 persons, 3 large rice and corn mills which employ 10 or more persons, a lumbering camp in Aposcahoy Barangay, Claveria Municipality which employs 10 persons, two rural banks in Claveria and in Medina Poblacions each of which employ 10 persons, a copra buying warehouse (Dy's Warehouse) which employs 15, 4 theatres (2 in Gingoog Poblacion) which employ 10 - 12 persons each, a San Miguel (beer) warehouse in

Medina which employs 15 workers, a copra enterprise in Medina employing 10 persons, Lugod's Enterprises (Gingoog Poblacion) which employs 10, 3 bakeries in Gingoog city all employing 10 - 14 persons, two large stores in Gingoog Poblacion that employ 10 or more persons, a rubber plantation in San Juan Barangay, Balingasag, which employs 8 persons, a billard parlor in the Claveria Poblacion which employs 8 persons, a barangay high school in Hinaplanan Barangay, Claveria Municipality, which employs 8 persons, some eight copra buying companies employing from 2 to 5 persons, a number of small rice and corn mills (about 7) which employ 1 to 5 persons besides the owner and unpaid family helpers, and about 10 stores larger than the customary sari-sari store employing 2 to 5 persons. In addition, in each barangay there are usually one or two sari-sari stores operated by a family and depending for work force upon unpaid family helpers.

Absolutely speaking, the above listing reveals a dearth of industrial or of commercial enterprises in both the large and the medium size business categories. Relatively speaking, the listing reveals an extremely low level of off-farm employment in the area of observation.

This area includes the eleven municipalities of Misamis Oriental Province north and/or east of Jasaan Municipality. The population of these areas was 226,628 persons in 1975. These sources of employment altogether can provide approximately only about 1150 jobs for the roughly 59,000 men between 15 and 64 years of age inclusively (omitting the family sari-sari stores), less than two per cent. Almost no women are employed at all, outside of small family businesses or sari-sari stores which they themselves manage, and of course outside/work upon of aspects of the family agricultural enterprise, in which they help during planting and harvesting seasons on the family farm and in addition also grow vegetables or care for small numbers of farm animals (chickens, pigs, etc.).

A specific household question inquired whether women in the household (a) worked for salary or wages outside the family home and/or business (if any), or (b) worked in a family business separate from that of the family farm. Again the response was overwhelmingly negative, although some of the respondents had worked in the city or elsewhere before marriage, and desired work. This again underlines the lack of employment opportunities for women in the area of proposed rural cooperative electricity (the Misamis Oriental Electric Service Cooperative, Section Two, or MDRESCO II).

3. Household income was low. Three different estimates were made of income: (a) income from the main occupation of the household head, (b) household income from all cash and money sources accruing to the household, and (c) total income (cash and real) of the household. Under (c) were included estimates of the cash values at current local market prices of foodstuffs and materials produced or obtained on the farm or locally by gathering without charge (e.g., bamboo, firewood, fish, etc.). Mean incomes were based upon about 40 per cent of the already coded data. While household servants were considered part

of the household in regard to consumption of food, etc., their incomes were of course not considered part of household income since they were not available for defraying household expenses. These incomes per annum were:

a) <u>Head's Main Occupation</u>	b) <u>Cash Household Income</u>	c) <u>Total Household Income</u>
i) \$378	i) \$603	i) \$738
ii) \$445	ii) \$642	ii) \$764

Peso values were converted to dollars at the rate of Pesos 7.36= U.S. \$1.00, the rate current at the time of the survey for buying pesos with dollars, which is probably a better indication of the buying power of the peso in the Philippines than the rate of buying dollars with pesos (which requires more pesos per dollar). Two rates are given above. The first (i) is that obtained from 417 households including households whose head had reported no income (zero income) from his main occupation during the preceding year (i.e., retired, unemployed, disabled, etc.). The second (ii) is that obtained when households reporting zero income for head's main occupation were eliminated from the computations in columns (a), (b), and (c). It does not of course follow that because no income accrued to the household head from his main occupation, that household cash income (b) was also zero. (One retired person had an income of 60,000 pesos from investments and other emoluments.). Per capita incomes were:

a) <u>Head's Main Occupation</u>	b) <u>Cash Household Income</u>	c) <u>Total Household Income</u>
i) \$63.96	\$102.03	\$124.87
ii) 75.30	108.63	129.72

These are low levels of household income. An estimate of rural subsistence income sufficient to maintain good nutrition and health made in 1971 (Development Academy of the Philippines) was approximately Pesos 5,000 per annum for a household of six, or approximately Pesos 833 per caput, which at the above exchange rate would be approximately \$113.18 per annum. The total household income figure of \$124.87 is scarcely higher than this amount, if the inflation of prices and the decline in purchasing power of the peso since 1971 is taken into account. This is to say that present average income of the northeast segment of Misamis Oriental Province is at about subsistence level and may be below it. As can be imagined, the ranges of income are large, going all the way from a reported zero income to a reported Pesos 80,000 per year main occupational income (i), and from a reported Pesos 465 total household income to a reported 123,700. The significance of these ranges is demonstration by them that median household income is below this average since this is pulled up by the few very large households with income above P10,000 per year (3.4 per cent for occupational income and 6.2 per cent for total household income).

Preliminary analysis of the patterns of expenditures of income reveals that principal expenditures were related to the basic necessities - food, clothing, health (medicines), household needs (housing repairs and furnishings), and education.

"Credit buying" of a sort was found. This related to the acquisition of seed for planting corn or rice. Frequently this was obtained from a local person or store to be paid for in kind at harvest. Credit was also used to buy pots and pans, cloth, and other items from a local store or trader. Larger sums of capital for some particular need (hospitalization, education, etc.) are obtained from relatives or acquaintances through sale of a farm animal (pig, carabao, etc.), through sale of land, or by prenda, a type of loan agreement whereby the owner gives the usufruct of some specified property to the person who provides the loan, receiving back the right to the fruit of the property (e.g., 10 coconut trees) when the original sum has been returned. Most of the household heads do not attempt to borrow money from the banks for fixed interest over a fixed time period, and few attempt to buy on credit from stores in the city or the municipal poblacion, objects valued at ₱100 or more. In fact, there is very little credit buying at present in the northeast segment of appliances, of objects of any value. /or

4. The use of electricity in the area was minimal. No public utility was supplying the Gingoog City Poblacion (city center) electric power. A few private individuals and stores (e.g., two movie houses) supplied their homes (perhaps 50 households in all receive power) or their business places with electric illumination. Two municipalities, Lagonglong and Medina, supply limited power from small generators to approximately 650 households altogether for about four hours a night. The Anakan Lumber Company supplies electricity to about 300 households in Anakan and the Mindanao Plywood Corporation supplies about 20 households in Lunao Barangay, Gingoog City. In Balingoan Municipal Poblacion five small generators (four of them private) supply power to approximately 45 households, and in Binuangan a private generator supplies 4 households. Altogether therefore perhaps 1,070 households were receiving small amounts of electricity for illumination purposes out of approximately 38 thousand households of the municipalities studied. Further, except where companies like Anakan Lumber and Minply had installed their own generators for industrial purposes, no electricity was available for powering various types of industrial machines.
5. Demographic data. Estimates are as follows. The sex ratio of the households was 1.05. About 46 per cent of the members of households were less than 15 years of age, another 52 per cent were between 15 and 64 years of age, inclusively, and about 2 per cent were older persons. About 48 per cent of the women were single (mostly women less than 20 years of age), another 48 per cent were currently married, about 4 per cent were widowed, and a small number, less than half a per cent, were separated (estranged) from their husbands. The average woman appeared to be slightly better educated than the

average male, with ages 10 and above were considered. Although slightly more women than men had completed no grades of school, the median grade completed was about 5 grades for males, and 6 grades for females. The rather limited evidence of the preliminary analysis suggests a birth rate of about 35 to 38 births per thousand persons.

Health data indicate considerable morbidity with what appear to be high rates of gastrointestinal disorders, especially among young children. Investigation has disclosed numerous reports of infestation by intestinal parasites (worms, etc.) and a substantial amount of amoebiasis. Reason exists for linking the amoebiasis and to some degree the other parasites to the drinking water. Some of this comes from shallow wells and springs that may be unsafe.

Mortality appears to be somewhat higher in the northeastern segment of the Province. The sample used for preliminary is too small for any firm conclusion, but results suggest that the crude death rate may be as high as 12 or 13 deaths per thousand as compared to 10 or 11 per thousand elsewhere in the Province. If so this would seem to be associated partly with poor road facilities between home or place of accident and distance to adequate hospital facilities in Cagayan or Butuan Cities (a situation now remedied by the completion of the new concrete road in most of its sections all the way from Cagayan to Butuan). If mortality is indeed higher, other factors probably involved are low income and impure water supplies. The low income motivates parents to rely more on native healers than upon medical doctors, and the bad water results all too often in intestinal parasites and amoebiasis which have particularly serious effects upon infants and young children.

/analysis

6. Family planning. More than 30 per cent of the women in the ages 15 - 49 had ever used family planning, and of these approximately 25 per cent were continuing to use some family planning method at time of interview. It is interesting to note that users appeared to have smaller numbers of children ever born than non-users. It is also interesting to note that women who had worked in the city previously to marriage, and the very few employed women appeared to be more likely to practise family planning and to remain current users. This finding however rests upon a small number of cases of women employed and may not stand up in later tabulations. The data also suggest an association between education and use of family planning of an inverted U curve type.
7. Respondents perceived many more advantages than disadvantages in the presence of an electric service cooperative and the electricity it offered. Most were very enthusiastic about its advantages and mentioned few disadvantages. Particular stress was placed upon the advantage of steady, clear, and clean illumination in contrast to the sooty and flickering light from oil lamps. Other advantages mentioned in order of frequency were the security afforded against hold-ups and thievery by good illumination, the lower cost of electric illumination against oil and gas alternatives.

the appliance which one could buy and effectively use once electricity was available, the increase in the utilization of educational facilities through the possibility of adequately illuminated classrooms, the increased possibility of study by the children at night and of lesson preparations by teachers because of electric illumination in the homes, the probable increase in employment opportunities that would occur, and the possibility of attending such functions as religious services or social gatherings at night (when it is cooler) than during the daytime.

The disadvantages mentioned centered about accidents connected with the electricity. The first and most commonly mentioned was the danger of fire with resultant property loss and danger to life. The next mentioned was the danger of possible electrocution or bad electric shocks. The third mentioned was the security danger (theft, robbery, etc.) occasioned by blackouts in the electric system caused by some breakdown or shut-off of the power, especially those occurring without advance notice. At present the people have oil or other illumination facilities but they will probably not keep these after they become dependent upon electricity, and blackouts may find them with just a few candles for illumination purposes. For the few wealthy enough to think of buying a refrigerator, blackouts might also cause loss of perishable foods through spoilage.

C. Interpretation of These Preliminary Findings

The use of electricity in the area for productive purposes thus far has been minimal. Correlatively, the employment of both men and women outside of agriculture and fishing has also been minimal. However, the installation of the MORESCO-II electrification is beginning. Balingasag and Lagonglong Municipal Poblacions were being electrified as the interviewing in that location was taking place and connections to the system in Balingasag totalled 616, with 449 still to be hooked up. Several barangays on the national road had already also begun to be electrified (18 installations in Baliwagan and 12 in Binitinan). In Lagonglong Poblacion, 441 households had already been connected to MORESCO-II lines, with 8 still to be connected, but no barangay households had yet been hooked up.

The expected timing of the hook-ups in the other MORESCO-II areas runs through 1979 to 1982, with some barangays expressing doubts of eventual connection to the system. Such barangays lie 8 to 18 kilometers from the national highway. In some cases the doubts are justified. While the MORESCO-I cooperative policy was to bring lines where they could get as many as four installations per kilometer originally, they also had the policy of not bringing a line to a barangay or location which did not have some type of access road. This is a reasonable policy, because where no access road is found, maintenance and supply problems become well nigh insoluble because of expense. Presumably, the same policy will be observed in the north-east Provincial area of the MORESCO-II.

The scale of the hook-ups in Lagonglong and in Balingasag makes it clear that relatively low-cost cooperative electric service will be available in at least the poblacions of the new area. Presumably any household in barangays that have an access road will also be serviced over the next five years. The minimum charge per household is Pesos 6.00 monthly for 15 kilowatt hours or 40 centavos per kilowatt hour. This is slightly more expensive than in MORESCO-I at present, which currently charges ₱6.30 for a minimum of 17 kilowatt hours, i.e., about 37 centavos a kilowatt hour. The charge to small business users is 0.50 per kilowatt hour. (This compares favorably with MORESCO-I which charges businesses ₱9.50 for a minimum 17 kilowatt hours or 55.9 centavos per kilowatt hour.) Small and medium sized businesses can also expect to get the current they need, presumably. Large-sized businesses will presumably be able to get their illumination needs. Their machine power needs may require special arrangements. Reference is made here not to existing businesses, which presumably can be accommodated, but to possible new businesses springing up in the area or moving into the area because of the attraction of cheap electricity.

The family planning program of the government has obviously made some headway, in bringing down the level of fertility in the area. The decline so far however has been small.

From the foregoing, the following conclusions were reached. The area is suitable for a baseline study of the socioeconomic effects of rural electrification in numerous ways:

First, the level of employment in commercial or industrial positions outside the household is and has remained exceptionally low. Increases in employment opportunities after the introduction of electricity may be attributed therefore with considerable reason to the two factors of available, cheap electricity, and to the new concrete road leading in one direction to Butuan City and in the other to Cagayan de Oro.

Levels of income are also very low, and rest mainly on agricultural and agribusiness foundations. There is almost negligible employment in industrial, factory, and even large-scale commercial enterprise. Increases in income from employment made possible by the availability of electricity and a good road will be fairly clearly attributable to these causes.

Women are rarely employed outside the household, except in family sari-sari stores or other family business. The main reason appears to be lack of employment opportunities for women. Increase in the employment of women due to increases in employment opportunities appearing after the introduction of cooperative electric power and light will also be attributable with considerable reason to the two factors of electricity and a concrete road.

Women already enjoy high status in Filipino society relative to the status of women in Chinese or Indonesian societies. They are on terms of relative social equality with men and are permitted to share occupationally in those avocations to which their physical powers are appropriate. They keep the family money and budget it to cover the various family needs. Important decisions for the family are discussed by both parents on terms of approximate equality, and although the husband makes the final decision, he keeps in mind the views of his wife. It is thus not easy to measure gains in status for the particular woman in the community or in the society because they already enjoy high status. However, no doubt seems present in the minds of women respondents that they would gain in status at home and in the community if they could (a) contribute income to the family budget from employment either (i) in a family business that they would be able to manage profitably or (ii) in a business or industry outside the household relationship, and/or (b) attain a higher educational level than their present achievement. Two possibilities are therefore possible. The first would take increased contributions by women to household income as indicators of gains in both family and community status and would similarly regard increased education (or definite plans for such education) of women in the family (either of mother or daughters) beyond average previous family and community attainment for women of the same age, as indicators of increased status in both family and community. The other possibility would try to assess such status gains directly.

Nothing in the data suggests that the relatively high status of women in the study areas has changed much in the last ten years, either to become higher or lower. While the educational attainment of young women has advanced, so has that of young men. Occupation-wise, no important change in the relative proportion of women employed outside the family agricultural enterprise seems to have occurred, although a greater permissiveness for young women to be so employed may exist today than ten years ago. Thus an advance in the family and/or community status of women, due to proportional increases in employment and in education, could with reason be attributed to the interaction of a good road and the availability of electricity through provision of employment opportunities within the study area.

The data suggest that some decline in fertility has occurred without correlative economic development taking place. It may therefore be difficult to link further decline in fertility to rural electrification in interaction with the new concrete road. On the other hand the type of women who wants to contribute to the family income from her work in a family business or in employment outside may find family planning more attractive than women not so motivated. Poorer families may also consciously or unconsciously choose family planning in order to save money to pay for the installation of electricity at home and for the monthly electricity bills thereafter as well as electrical appliances bought on credit. If so, it may be possible to associate rural electrification with fertility

declines larger than would otherwise have taken place, and with particular women who specifically began family planning for reasons of attaining electrification in their homes. (The cost of electrification is large enough to require paying loans over a period of six months to a year for a low income family.) It may also be possible to eliminate or separate the effects of the new road. In this connection, preliminary analysis of the baseline survey revealed that a larger than average proportion of the women who had worked before marriage had accepted family planning after marriage (despite the fact that they were no longer working), and that almost all the few who were employed outside the home had also accepted family planning.

The data also indicate that the northeastern segment of the Province will furnish a good comparison group for study of changes that have occurred in the western segment of the Province since electrification there in 1972. Before that date, like in the northeast, employment opportunities were very limited and only the exceptional woman was employed outside the household - with the exception of those living near enough to the City to be able to commute daily. Farming and fishing were also the principal occupations although fishing grounds were not as good in the west and extent of irrigation was even more limited. Crops were substantially the same, rice and corn, although more corn was grown in the west because the rainfall is not as abundant. Tobacco however seemed a more important cash crop in the west and coffee in the northeast. Levels of median education and income appear to have been about the same.

- Thus the northeastern segment can be used as a quasi-before group for a simulated before and after experimental design to test the influence of rural electrification in the west. The fact that a good concrete road from Iligan to Butuan Cities running through Cagayan links them both is a means for partially separating out the effects of this road in the western segment.

As a result of the baseline survey in the northeast, the following hypotheses have emerged for testing in the survey to be conducted in the western segment of the Province.

HYPOTHESES

1. Electricity from rural electric cooperatives generates employment by stimulating the establishment of small industries, trade establishments, and businesses, and by attracting into the area new or already established enterprises previously located elsewhere.
2. (Cooperatively supplied) electricity increases the percentage of women employed, both outside the home and in family businesses sufficiently distinct from the family farm that they generate different sets of income returns.

3. Cooperatively supplied electricity increases the average income of households in the service area.
4. Cooperatively supplied electricity increases the average income of homes that consume electricity beyond the average income of homes in which electricity has not been installed.
5. Cooperatively supplied electricity leads to a greater degree of credit buying of electrical appliances and other goods.
6. Cooperatively supplied electricity leads to an increase in number of local pure water projects embracing several or more houses.
7. Cooperatively supplied electricity leads to an increase in number of irrigation projects.
8. Cooperatively supplied electricity upgrades municipal health by making possible night treatment of emergency case operations, and by providing refrigeration and sterilization potentials.
9. Cooperatively supplied electricity leads to higher educational aspirations in order to qualify for employment opportunities emerging in the western segment of the Province, both for self (and spouse) and for the children.
10. Cooperatively supplied electricity leads to increased educational potential in communities by making night classes truly feasible, effect multiplying plant space. /in
11. Cooperatively supplied electricity leads to use of family planning and lower fertility through credit buying on the installment plan of electricity-powered appliances (opportunity costs of another child), and other goods.
12. Cooperatively supplied electricity leads to family planning by stimulating investment in such enterprises as irrigation systems and pure water systems (opportunity costs of children).
13. Cooperatively supplied electricity leads to an increase in the community and family status of women by the individual contributions which they make to household income obtained by employment outside the household in jobs generated by the availability of electricity.

14. Cooperatively supplied electricity leads to an increase in the community and family status of women because of the increased level of educational aspiration it engenders in female heads of household in their daughters and in other female members of households.
15. Cooperatively supplied electricity leads to an increase in the community and family status of women because of the increase in educational attainment it makes possible for female heads of household, for their daughters, and for other female members of households.
16. Cooperatively supplied electrification increases the number of employed women by making possible housework at night after office hours.
17. Cooperatively supplied electrification increases farm household income by making possible income producing activities at night such as corn shelling, nipa square making, care of poultry, and care of swine and other live stock.
18. Cooperatively supplied electrification decreases fertility by attracting more women to desire to limit conceptions through use of family planning because of various opportunity costs (installment of electricity, credit buying of appliances, work opportunities, payment of seed, fertilizer, and insecticide costs, of irrigation costs, of educational costs, etc.).
19. Cooperatively supplied electrification creates through increased income and contacts outside the home aspirations for more expensive and varied patterns of expenditures of income diverse from those found in poor areas without electrification (where expenditure patterns emphasize food, clothing, and basic necessities).
20. Cooperatively supplied by increasing mean income increases the level of economic security and creates a psychological climate in the individual more conducive to planning which through experience generates habits and abilities at planning. electricity
21. Cooperatively supplied electricity leads to the investment of less resources in their children and investment of more resources in durable and semi-durable consumer goods.

Discussion: In the above hypotheses, various views have been considered. Heer (1966) hypothesized that increased income would be associated with a more positive outlook, result in earlier first marriages for women, and be characterized by higher fertility. Similarly Becker (1960) thought that persons with increased income would worry less about the economic costs of child-bearing so that income gains would be linked to stationary or increased fertility. Sty (1958) in a study in Poland found that peasant farmers had larger numbers of children as their farms were larger and thus that farmers with secure jobs on large estates had more children.

Easterlin (1969) however noted that increase in income may increase resources and thus tend to stimulate fertility. However, it also tends to increase the desire for goods and thus to decrease fertility because of opportunity costs of an additional child. Thus, he concluded, increases in per capita income are not necessarily associated with increases in fertility.

Mueller (1972) argues from empiric data that low income couples are not more sensitive to cost factors than couples with higher incomes and thus that sensitivity to the marginal cost of another child is scarcely a function of low income. She also argues from empiric data that the perceived economic utility of children is inversely related to income and that therefore higher income is associated with lower perceived utility of an additional child.

Encarnacion (1975) /noted in empiric Philippine data that the relation of income to fertility appears to assume the form of an inverted U curve, with rising fertility accompanying rising income up to a threshold point beyond which fertility begins to decline with rising income. From these data, he generalizes to a principle of threshold income for the Philippines, beyond which income and fertility are inversely related. /has

Schnaiberg and Reed (1974) have advanced the view that absolute level of income (threshold or relation to threshold) is not the important point but the perceived certainty or uncertainty of maintaining particular levels of income. Strong doubts of maintenance of level persuade parents to have many children as a rational choice since their labors may help parents to survive "lean years".

Rich (1973) argues more in terms of income distribution (gini ratios). Countries with high gini ratios like the Philippines are /tend to be characterized by higher fertility. Countries with low levels of income inequality (low gini ratios) tend to be characterized by lower fertility. /or

Madigan (1979) has argued that continued substantial investment of national product in rural infrastructure (e.g. rural electrification, roads, etc.) will give more buying power to the rural masses, stimulate urban industry because of an enlarged rural market, produce a more qualified labor force (largely drawn from rural areas) because of improved nutrition and education, decrease gini ratios, and through increased opportunity costs of children, have a depressing effect upon fertility.

Nerlove of course (1974) has in recent years argued the thesis that fertility is related to the investment in a woman's educational and other personal formation, and that the level of fertility resulting for any particular woman will be a resultant of the amount and valuation of child-bearing in comparison with the valuation of other possible expenditures of the woman's time in relation to the views of the household and of the particular woman.

The hypotheses advanced stress both Madigan's and Easterlin's views, and especially the view that the determining factor in the decision to have or not have another child is the perceived gained or lost opportunities. Up to a point, children on a farm release the parents from time-consuming but important activities (watering and pasturing the carabao, delivering messages, cleaning the dishes, dusting the house, etc.) for investment of more hours in more financially rewarding tasks (e.g. plowing, running a family sari-sari store, tending to the poultry, etc.). On the other hand, the cost of another child (fees to a doctor or gift to a midwife, medical, and nutritional costs, clothes, etc.) may mean failure to pay an installment as a credit buyer, or inability to buy necessary fertilizer, pesticide, and seeds for high-yield rice varieties, etc.

While stressing opportunity costs, however, the analysis of the data from the survey in the western segment of the Province will remain alert to the other hypotheses to discover which seem better supported by the facts. The function of the hypotheses advanced is more to sharpen the attention of the researchers than to anticipate the topography of the results, despite the fact that opportunity costs at this point of time and on the basis of **past** experience seems the most likely to prove rewarding. The RMCU experience has impressed its members with the rationality of choices made by rural residents - once the grounds of their decisions are understood.