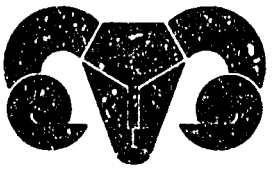
Small Ruminant Collaborative Research Support Program



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Differential Access to Land and its Consequences in Three Peasant Household Production Systems in North Sumatra's Plantation Periphery

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DIFFERENTIAL ACCESS TO LAND AND ITS CONSEQUENCES IN THREE PEASANT HOUSEHOLD PRODUCTION SYSTEMS IN NORTH SUMATRA'S PLANTATION PERIPHERY

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ABSTRACT

Three villages were identified in North Sumatra's rubber plantation area. Each village represented a different type of peasant household production system: Landless households; Subsistence households; and Semi-commercial households. Interviews were conducted with male and female heads of households in the three villages identified through a random sample. Findings showed landless heads of households had a higher percentage of nuclear family members compared to the other two types. Larger/extended families in semi-commercial households created greater household production potential by owning land that could be worked by family members with profits directed back to the family. For landless and subsistence families, lack of land ownership meant household production was increasingly dependent on selling their labor to estate companies. In all three types of household production systems, women and children played different but key roles. Findings showed that access to the factors of production (land, labor and capital) and information greatly determined labor allocation for peasant household production.

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Introduction

The humid tropical lowlands of North Sumatra contain a large amount of under-utilized feed resources. Agricultural development in this area has emphasized the monoculture of commercial tree crops (rubber, oil palm, cocoa, etc.). These crops are produced by commercial estates and by smallholder peasants. Although the Indonesian Government has promoted smallholder peasant production of tree crops, smallholder production has not always been successful. A barrier to successful peasant production of tree crops is cash flow during the period between the establishment of the trees and their maturity. Small ruminants are one means of reducing cash flow problems and reducing the risks that smallholders face. One way to benefit peasant small producers is to develop a production system for sheep under plantation crops. The SR-CRSP has made this a primary concern in their Indonesian activities. To develop such a production system however, the unique constraints faced by peasant smallholders must be identified or there is a danger that sheep production will only benefit the larger commercial producers. All peasant groups are not alike; even those that are close to each other in proximity. Several mitigating factors can contribute or detract from different peasant groups' abilities to adopt the new sheep/plantation production system and thus capitalize on SR-CRSP technologies. Consequently, unique factors faced by different types of peasant groups in the area must be identified. Identification of these factors and how they effect different peasant groups' production capacities will enable SR-CRSP scientists to identify the most appropriate target group(s) for the sheep/plantation production system being developed.

This paper reports preliminary findings of the consequences of one mitigating factor--differential access to land. Differential access to land and its consequences for three types of peasant household production systems in the North Sumatra plantation periphery was analyzed. The theoretical and methodological foundations of the analysis are reported, followed by some preliminary findings.

Plantation and Peasant Economies

Colonialism brought both capital and landless indentured labor from Java to the rubber plantations of North Sumatra. At the conclusion of contracted servitude, peasants settled on the periphery of the plantations in an attempt to transform their lives from landless laborers to subsistence householders (see Stoler, 1985; 1986; 1987, for historical analysis). Over the last century this has transformed plantation labor and created various types of peasant households tied to the plantation economy through their varying degrees of access to land.

Contemporary plantations have been identified as a special case of the large capitalistic farm (Graham and Floering, 1984). Like the large farm they are characterized by: centralized control, a specialized labor force, close supervision, hierarchical management, and industrial methods of production and processing geared toward export. Beckford (1972) and Greaves (1959) also argue plantations are part of a

much wider economic system encompassing a set of relations geared to meet the needs of a distant metropolitan center (see also Pelzer, 1978). In essence, contemporary plantations, including those in North Sumatra, are couched in a larger capitalistic economy but remain on its periphery.

Because of their location in this economic structure, plantations tend to perpetuate poverty and underdevelopment (Beckford, 1972; Greaves, 1959; Geertz, 1968). The crucible in this dependency relationship is land. Jacoby (1961:172) argues that because of the plantation's "..adverse influence on land distribution and use," peasant households in the plantation periphery remain economically fragmented. To make "ends meet" even peasants who own land are often forced to secure other sources of income as the marginal land does not even provide for subsistence needs. Additional income sources most commonly means selling the labor of family members. These conditions also exist in North Sumatra's plantation periphery.

North Sumatra's Plantation Periphery

In North Sumatra, peasant communities coexist on the periphery of plantation estates. These communities are directly tied into and affected by the plantation economy in at least three major ways: 1) competition for land and other resources; 2) provision of wage labor on the plantation to supplement peasant household incomes; and 3) retired full-time plantation laborers who take up residence in the community (Beckford, 1972). All three conditions appear to be directly or indirectly tied to the peasants' access to land. Therefore, an examination of differences in peasant household economy on the plantation periphery must consider the household's access to land.

Conceptualizing a peasant economy, however, is not easy. Placing peasant economy into a contemporary capitalist plantation structure further complicates the issue. Historically, the most commonly used unit of analysis has been the peasant household. Therefore, household production has typically underlined attempts to characterize a type of peasant economy. But the question remains, "What is a peasant household?" Most contemporary theorists have fallen back on the Marxist-Populist debate for answers.

From a Marxist approach, Shanin (1986), argues a peasant household constitutes a multidimensional social organization whose main means of livelihood is premised on land. Peasant households: a) engage in subsistence farming activities and may produce a small surplus for market; b) control or own some means of production; c) and experience domination vis a vis a social network external and internal to their own. In other words, they are politically subordinated, culturally dominated and economically exploited. This position--which defines the peasantry in terms of multifaceted power relationships--is basically a reformulation of Marx and Lenin.

Sahlins (1972) appeals to Chayanovian theory in his formulation of the peasant household. The peasantry is an economic system in its own right--a distinct non-capitalist mode of production. Peasant family farms rely on family labor power but are integrated as commodity producers into the national economy. Consequently, peasant households should be studied in terms of their own subjective criteria of operation. In Chayanovian theory, demographic differentiation occurs throughout the life cycle and dictates the

households' participation in the larger economy. For example, when a household has young children, they do not contribute as much farm labor. Therefore, the consumption requirements of the household increase while production is lowered. As children age and begin to work, the family's work force increases--the household begins to acquire more land and capital increasing its potential output. Therefore, family size--in particular the number old enough to work--is the independent variable that determines the peasant household's economic activity. Chayanov theory also argues that peasant households are guided by a different set of priorities--satisfaction of members' needs and wants, not profits--than capitalistic ones which are guided by accumulation, competition, and profit. Peasant households meet members' wants by: a) producing for their own consumption; b) marketing enough to enable them to buy what they need; c) or typically, a combination of both (see Chayanov, 1966 cited in Worsley, 1984).

Using aspects of both arguments, more recent formulations of peasant household economy have surfaced. For example, Ellis (1988), defines peasant households in terms of their integration into the capitalistic market. He suggests that traditionally peasants were defined, in part, by their varying commitment to the market--rather than their total commitment--and in part by the incomplete character of the markets they participate in.

Benholdt-Thomsen, (1982) and Friedmann (1978; 1980; 1986) also attempt to combine Marxist and Chayanovian concepts in the analysis of peasant households. Under capitalist conditions, peasant households are rarely self-sufficient and therefore must gain access to needs and wants through additional participation in the market. This can take place through either production and consumption or both. However, once the household production process becomes integrated into the market, household labor power becomes appropriated into capitalist relations of production (Benholdt-Thomsen, 1982). This is the case when peasant households are simultaneously engaged in subsistence agriculture and wage labor. Furthermore, Benholdt-Thomsen explains that peasant household subordination under capitalism takes three main forms: (1) members who work in subsistence agriculture are for all or part of the year wage workers as well; (2) peasant work gains exchange value in the sale of household products on the capitalist market, and (3) owners of capital succeed in controlling household production by means of credit agreements, thereby ensuring the appropriation of a surplus product for profit.

Friedmann (1978; 1980; 1986), has offered one of the best theoretical explanations of peasant household production. The peasant household is the basic unit of production and reproduction where major production inputs are supplied by the family. Peasant household production is typified by: a) its reliance on household labor; b) production for household consumption rather than exchange (although a small surplus is usually marketed); and c) commodities which are produced largely to meet the needs of simple reproduction i.e., providing food for family members and generating funds to replace, renew or repair the technical elements of production.

According to Friedmann, fundamental attributes of the internal organization of peasant households are: a) they provide their own labor power; b) they own the means of production; and c) they dispose of the products of labor. Household production thus

comprises only one class, combining property and labor, and merging the spheres of production, consumption and distribution into the same unit.

In combination with an analysis of peasant households' access to land, Friedmann's and Benholdt-Thomsen's constructs may be useful in understanding peasant household production in North Sumatra's plantation periphery. Such an understanding can further serve to identify the most appropriate group(s) for the SR-CRSP sheep/plantation production system.

Differential Access to Land

Drawing from previous research in Peru, Deere and de Janvry (1979), argue that the division of labor by sex and age is a reflection of the household's access to the "means of production". Additionally, in peasant households there is a basic division between domestic and non-domestic work. In rural Indonesia for example, domestic activities require long hours of physically demanding work--typically considered women's work (White, 1976). Such domestic work contains large elements of production for household consumption. Specifically, in North Sumatra's plantation periphery--since the communities are not based entirely on agricultural activities--Stoler (1985), found peasants' lack of access to land and capital has driven women and children to participate more in wage labor. However, women from households owning sufficient land, participated more in agricultural activities. These constraints on productive activity--associated with access to land--can create a condition wherein the net sum of monetary and non-monetary resources is below that required for the maintenance and reproduction of the peasant household.

Shanin's (1972) formulation of the peasantry sees it primarily securing its livelihood from the land. Shalins sees the peasant household integrated into a larger national economy and relying on family labor power for production. Finally, more traditional Chayanovian theory argues that demographic differences in the household dictate peasants' participation in the larger economy by their ability to purchase land later in the life-cycle.

Drawing from the above theoretical arguments, this study was designed to examine the effects of differential access to land on: 1) demographic differences in labor allocation in peasant household production, i.e., differences between men, women and children; and 2) the likelihood of different households having to rely on the sale of their labor for the major portion of their household income. Other research by the authors found that members of the family play different roles in household production based on gender and age. However, it is not known how a family's access to land affects these findings. Consequently, it is not known how agricultural tasks in general and small ruminant care in particular is distributed in these different circumstances.

Following Friedmann's insights, we use the peasant household as the unit of analysis. However, it is not treated as an undifferentiated unit; other household labor sources--especially women's and children's labor for particular tasks or at particular times of the year and the relations of the household to the wider socio-economic system--are also considered. Attention was also paid to household maintenance, household production

and off-farm activities. Household maintenance includes such things as food preparation, wood and water collection, and child care. Household production refers to preparation within the household of items which are for consumption or sale. Off-farm activities refer to wage labor, remittances from household members no longer on the farm, and marketing or other enterprises which produce income for the household.

Research Setting and Design

The study was conducted in Sub-District Galang, North Sumatra, Indonesia. There are 38 villages with a total population of approximately 70,000 while population density is about 370 people per km^2 in this Sub-District (see Table 1).

Three villages--Galang Barat, Jaharun A, and Karang Tengah--were selected to represent three different types of agricultural production systems and three different types of peasant households with varying degrees of access to land. The three groups are characterized by the following qualities: (1) Landless household (Galang Barat): (a) no or little access to land (less than or equal to 0.3 hectares); (b) family income is derived primarily from selling labor to the plantation; and (c) live inside the plantation area. (2) Subsistence household (Karang Tengah): (a) have access to land greater than 0.3 ha. but less than one ha.; (b) part of the family income may be derived from selling labor either to plantation companies or to other on and/or off-farm activities. (3) Semi-commercial household (Jaharun A): (a) access to more than one hectare of land, (b) usually engage in cash crop production, and (c) household social reproduction relies heavily on household agricultural production. The reason for dividing the sample into three different types of peasant households based on land ownership was to provide a framework to examine inter and intra household relations and patterns of resource allocation (see Table 1).

Data for the study were collected through a survey of the three villages with farm household (headed by either males or females) as the unit of analysis. Selection of sample households was carried out using a proportionate random sampling method. Listing of households was obtained from village heads. Household location maps were then constructed and households were systematically selected from these maps. One hundred twenty peasant households were randomly selected for interviewing. The questionnaire was divided into three sections. The first section addressed the agricultural income cycle for 1989. Included were questions on land tenure, types of crop cultivated, land type (rain fed/irrigated and dry or wet land), the number of squares meters owned or rented and operated, and crop output. The second section covered all non-farm household income earning activities and the type of wage work and the number of days each household member engaged in full and part-time wage work and the income derived from this activity. The third part of household income activities concerned the keeping of livestock.

Through the three sections of the questionnaire, four different characteristics of the various households were examined. **1) Household structure and composition:** age, sex, religion, composition of the household, education, kinship and marital status. **2) Differential household access to land:** land ownership, land rented-in, land rented-out, type of land (i.e., dry land, wet-rice land and home gardens). **3) Labor processes and time allocation in household production among household members:** information

included the type and extent of each household member's participation in non-remunerated tasks or on household maintenance and the division of labor in agricultural activities. Respondents were asked which household members engaged in the agricultural production process and the amount of time spent in each, i.e., plowing, sowing, cultivating, weeding, fertilizing and harvesting. For households who owned animals, information about household members' involvement in animal care was also recorded. **4) Household member's wage-earning activities/sources of household income:** the type and extent of each household member's participation in remunerated tasks for both agricultural and non-agricultural wage-earning activities, composition of household member's participation in wage-earning activities, and months per year household members engaged in wage-earning activities and employment were recorded.

Data Analysis and Findings

Descriptive statistics (average and percentages) were employed to analyze household composition, ownership of the means of production, time allocation, and other data gathered for the study.

1. Demographic Structure and Composition of Peasant Household

Table 2 shows that on the average, the family size was 5.1 members, 7.1 members, and 7.0 members for landless, subsistence, and semi-commercial households, respectively. Landless households had the highest percentage of nuclear family members (81.6 percent) compared to subsistence (67.6 percent) and semi-commercial households (52.9 percent). Semi-commercial households had the highest percentage of extended family members (47.1 percent) compared to landless and subsistence households (18.4 and 32.4 percent, respectively). These results support Deere's (1978) findings that: (1) the social differentiation of peasant households has reinforced the extended household as the unit of production among semi-commercial household, whereas (2) it has produced a more nuclear household structure among landless and subsistence households.

Household agricultural activities were based on familial labor supply and the form of the extended family. Since semi-commercial households had sufficient farmland, children were an important source of household labor Landless and subsistence households had lower percentages of extended family members. These findings can be explained in two ways. First, as landless and subsistence households had less access to the means of production, some children migrated, freeing parents from the material responsibility for their care. Second, the findings indicated there were differences in family structure among the three different peasant households. For instance, the majority of landless households were younger families and thus less likely to have extended family members.

2. Differential Access to Land

In the analysis of farm size and land distribution, Table 3 shows that among landless households, only 28 of the 49 sampled had acquired some land. Average land size was 0.17 ha. In all, only 14 of 49 landless households owned land located outside the plantation company. Landless households bought dry land for housing to use at retirement (age 55) when they had to move from the estate company. In addition,

landless households did not base their production on agricultural activities. Of the landless households sampled, 28.6 percent acquired unused plantation land and only 6.7 percent had rice fields.

The type of land owned by households was also an important determinant of household income. Table 3 indicates that 48.6 percent of the subsistence households had dry land averaging 0.57 ha; 70.2 percent had rice-fields which averaged 0.38 ha. Ninety one percent of the semi-commercial households had dry land which averaged 1.78 ha.; 44.1 percent was rice land which averaged 0.48 ha. Typically, dry land is only cultivated for perennial crops such as rubber, coconut, and palm nut which require large initial capital inputs. This suggests that semi-commercial households were more engaged in cash crops and that subsistence households were more concerned with needs of household consumption. However, it is becoming increasingly difficult for many subsistence households to support themselves from the land available to them. Most of the households in the study had home gardens. The average size of the gardens were 0.08 ha., 0.17 ha., and 0.29 ha. for landless, subsistence, and semi-commercial households, respectively. Garden-produce is an important source of household consumption and income. The regular sale of bananas, coconuts, rambutan and durian, is especially important.

3. Time Allocation and Labor Process Among Household Members

Tables 4 and 5 present a summary of time allocation and responsibility for daily maintenance for household members. Table 4 reports the average number of minutes per day allocated to six categories of housework 1) food preparation, 2) cleaning houses, 3) fetching water, 4) fetching wood, 5) washing clothes, and 6) shopping during a 30 day period.

Daily household maintenance is a female activity. Up until the age of 12 or 13, daughters complement the mother's labor, then they begin substituting for their mothers and may take over responsibility for cooking and washing clothes. Table 5 indicates that an average female work-day in housework is three times longer than males. Daughters below age 14 work less than older ones. No differences in housework maintenance patterns were found among different types of households. On average, mothers worked 3.5 hours per day, daughters below 14 worked 2 hours per day, and daughters above 14 worked on average 3 hours per day for household maintenance activities. Male household members worked approximately one hour per day for housework.

Food preparation, house cleaning, clothes washing and shopping fall almost completely under the mother's responsibility in the majority of peasant households. Table 6 shows that young girls under age 14 in landless households work less than that of young girls in subsistence and semi-commercial households. This is due to the fact that most landless households are young families, with children under age six.

Participation of children of all ages in carrying out household tasks is very crucial to the family. Children as a source of labor are also key to the total production strategies of peasant households. Daughters are much more likely than sons to participate in

housework. Yet, fetching wood and water fall under the male domain in the majority of peasant households.

The activities which produce use and exchange values in peasant households are agricultural activities, animal raising activities, and artisanal production. This activities are based on the familial labor process. However, there are differences among different types of peasant households in terms of male and female participation in these tasks. The data in Table 7 (based on households who own rice fields) shows the breakdown of household responsibility for various agricultural activities. Between 47.5 to 75.8 percent of rice-field agricultural activities fall under male head's responsibility. The division of labor in rice cultivation activities shows a clear stratification by sex: land preparation (plowing, hoeing, and harrowing), irrigating, and fertilizing all fall under the male domain. However, in some landless households with very small plots of land, these activities may be carried out by women and other family members. In these situations men may work as wage laborers outside the subsistence economy. Even though subsistence and semi-commercial households own on average less than 0.5 ha. of rice land, the majority of these households hire labor for land preparation, planting and harvesting. The major reason why subsistence and semi-commercial households hire labor is to perform the tightly time-constrained operations, in particular, planting and harvesting. Table 7 also shows that less than 20 percent of the sons and daughters above age 14 devote their time to agricultural activities.

For semi-commercial households that grow perennial crops (i.e., rubber), 70 percent of all agricultural tasks fall under the father's responsibility. Heads of households work every day of the year, while female household heads hired labor for agricultural activities (this represented only two cases in the sample study). Some work with their sons, while other members of the household (usually the mother) help collect latex and weed grasses surrounding the trees every other day. Marketing is primarily the father's domain. Thirty percent of semi-commercial households hired labor for agricultural activities.

Livestock raising activities were generally undertaken by all family members. Yet, the distribution of tasks often depends on the type and composition of the peasant household. Though most livestock raising activities were shared by almost all household members, men and young children were particularly involved. Female household members would be responsible for livestock raising activities if there was no male household members around. Typically, they help in cleaning the barn, and in feeding and watering the animals. Table 8 indicates that the head of household spends almost 2 hours per day on livestock activities, while male children spend an average of 3 to 3.5 hours per day on the same activity.

Another activity which produces use and exchange values is artisanal production. As shown in Table 9, only 29.2 percent of all peasant households engaged in artisanal production with the highest percentages found in semi-commercial households (29.4 percent). Landless households had the lowest percentages (22.4 percent).

Food stalls or country stores considered artisanal production, were also sources of household income. These are usually considered a female venture. Fourteen percent of the sample households engaged in country store activities where sales ranged from Rp. 5,000 to Rp. 50,000 per day. The highest percentage of households engaged in this activity were semi-commercial households (20.6 percent). This suggests that in this households, sufficient capital was available to maintain food-stalls or country stores.

4.a. Wage-earning activities among Household Members

Data on family labor supply are provided in Table 10. It shows that approximately 50 percent of the landless and subsistence households had 4 to 6 members in the labor force. Fifty percent of the semi-commercial households had more than 6 persons as labor sources. On average, landless and subsistence households had a smaller family labor force than semi-commercial households.

Table 12 shows that among the three different types of households, landless households had, on average, the highest percentage of family members participating in agricultural off-farm activities (89.8 percent). This compares to subsistence (54.0 percent) and semi-commercial households (11.8 percent). Table 12 also shows that 89.8 percent of the heads of landless households who earned wages worked in the plantation company as permanent labor. The majority of women and children from landless and subsistence households worked odd-jobs on farms in the estate company inside and/or outside their villages with income earnings smaller than permanent labor. Landless and subsistence women were more involved in agricultural wage-earning activities than women from semi-commercial households. Most of the landless and subsistence women worked in the estate company as temporary workers. Payment for harvesting was in cash or kind.

Children from landless and subsistence households participated more in wage-earning activities than children from semi-commercial households (Table 12), indicating that lack of access to land--has increasingly forced landless and subsistence household members into the labor market. Thus, the household is primarily involved in it's reproduction through labor power.

Table 14 indicates that the average total of months per year for household members to engage in non-agricultural wage-earning activities is higher for subsistence households than for landless and semi-commercial households.

Table 15 indicates that more members of landless and subsistence households engaged in labor market activities than semi-commercial households. This suggests that since landless and subsistence households lacked access to land and capital, the possibilities for employing children and other household members on their own farm were limited. Thus, more children from landless and subsistence households were drawn into the labor market. These findings were consistent with Stoler's (1985) study which found that landless and subsistence households in North Sumatra's plantation periphery maintained their household reproduction process based on wages earned by other household members in other sectors, and not necessarily from household agricultural production.

4b. Sources of Household Income

Income sources were divided into five categories; (1) food/cash crop production; (2) livestock production (livestock products reported to be sold to the market during a one year period); (3) farm labor (work for wages on the farm or estate company); (4) non-farm labor (i.e., servant, driver, trader, and artisanal producer); (5) remittance from household members who migrate to other rural areas or cities.

The value of agricultural production consisted of (a) the value of rice production from two seasons (wet and dry), (b) the value of cash crops, i.e., rubber, coconuts, cassava, (c) the value of home garden products, i.e., bananas, durian, rambutan, etc.

Different sources of income-earning activities were found to be a function of a peasant household's access to land. Semi-commercial households relied more on agricultural production than on labor selling activities. Landless and subsistence households relied more on the sale of labor power in order to insure the household social reproduction process.

The average yearly and source of income of peasant households is reported Table 16. Significant differences exist among the three different types of peasant households. The lowest average income was found in subsistence households (1602Rp). This represented only 66 percent of the average income of semi-commercial households. Landless households showed an average annual income that was about 85 percent of the average income for semi-commercial households. An interesting point was that landless households had higher income levels than subsistence households. This may be due to the following. First, landless heads of households worked as permanent estate employees. Even though they did not have access to land, they had relatively fixed, well rewarded income sources from rice subsidies. Second, subsistence households' engagement in rice production was primarily directed at household consumption. The seasonal nature of agriculture creates a seasonal pattern of off-farm activities. During pre-harvest periods, off farm activities sharply decreased. As a result, some heads of households were underemployed or unemployed. At the same time, opportunities to work in the estate company as casual labor were very limited. Moreover, as the evidence suggests, contractors preferred the labor of young girls and boys rather than that of old men or women because of the perception that plantation work was tedious (Stoler, 1985).

The above results are consistent with those of Stoler (1985; 1987) which indicated that villages in North Sumatra's plantation periphery were only marginally considered agricultural communities. Instead, villagers devoted a significant amount of their time to off-farm income generating activities.

In summary, the findings support the proposition that access to land effected the composition of household income. Semi-commercial households relied more on their own agricultural production, while landless households, because of lack of access to land, relied more heavily on the sale of labor power as their main source of income. Subsistence households occupied positions roughly midway between these two.

CONCLUSIONS

Semi-commercial households with larger family size and higher percentages of extended family members had the possibility for greater household production based on land owned and family labor resources. For landless and subsistence households who lacked land ownership and capital resources, household production became increasingly dependent on the selling of labor power, especially to estate companies.

Access to land and other capital resources (e.g. livestock) generated different activities for peasant household production. Landless and subsistence households relied on wage-earning activities for the major portion of household incomes, while semi-commercial households were more often regarded as agricultural commodity producers.

In all types of peasant households, women generally took responsibility for daily household maintenance activities. Women from landless and subsistence households engaged more in off-farm activities (i.e., selling labor to other farmers or estate companies where they worked as casual labor) than women from semi-commercial households. Women from semi-commercial households devoted more of their labor time to household production and agricultural activities rather than to off-farm activities.

Children in North Sumatra's plantation periphery played an important role for household production. Children from landless and subsistence households participated more in selling their labor compared to children from semi-commercial households. In the landless and subsistence households, because household production cannot meet the basic necessities for social reproduction either from land or wage-earning activities, children generally either temporarily migrate or complement their parent's work by selling their labor power to plantation companies or non-agricultural activities.

The contrast between landless and semi-commercial peasant households in the proportion of income from agricultural activities and off-farm activities was stark. Landless households earned an average 2.1 percent from agricultural activities and 84.2 percent from selling labor power, while semi-commercial households earned 57.1 percent from agricultural activities and 24.4 percent from selling labor power. The subsistence households occupied a position roughly midway between these two.

Contrary to Shanin's arguments, household production in North Sumatra's plantation periphery was not based primarily on land (agricultural activities) but on the selling of labor power, with the household as a pool for income earning activities. There were differences in the life-cycle of the household to labor market participation but it was access to land which determined the amount of participation in the labor market by different members of the family. In general, landless and subsistence households more often sold their labor for the major portion of their household income than did semi-commercial households.

Implications for the SR-CRSP

The three groups analyzed above are all peasant smallholders. Yet the analysis shows that access to land is highly associated with the production options available to the

family. SR-CRSP scientists need to consider which peasant group will receive the most positive impacts from the SR-CRSP technology and the sheep/plantation production system. This is not an easy task as positive impacts can be determined in many ways. For example, semi-commercial peasant families have a distinct advantage over landless and subsistence groups to capitalize on SR-CRSP technology. They have more labor power available to the family that can be allocated to family agricultural tasks and away from wage labor. In these families, SR-CRSP technology can be adopted quickly and efficiently. The positive impacts can be measured by a rapid adoption of the technology and perhaps a measurable increase in the family's economic condition in a short period of time.

Landless and subsistence farmers on the other hand, are at a disadvantage in adopting the SR-CRSP sheep/plantation technology at the outset as they have been forced to allocate more of their family members' productive power away from family agriculture and into wage generating activities outside of the family's holdings. However, it is precisely these two groups that stand to benefit the most from the SR-CRSP technology over the long run. The SR-CRSP technology is designed to increase the family's cash flow options within their own holdings. Increasing cash flow options within their own holdings is the more desirable option to all peasant households versus being forced to sell family members' labor to outside interests for wages. That is what distinguishes them as peasant versus consumeristic families. The impacts of the SR-CRSP technology on these two groups would not be as quickly measurable as with the semi-commercial families as it would take considerably more time for them to adjust their production strategies to accommodate the new opportunities. However, in terms of positive impacts, it increases available options to the two groups that are lacking them the most.

TABLE 1

DEMOGRAPHIC AND LAND USE CHARACTERISTICS
OF SUB-DISTRICT GALANG AND THREE VILLAGES

Characteristics	Galang	Galang Barat	Jaharun A	K.Tengah
Avg. population	68,153	1,706	2,118	1,038
Avg. density/km^2	361	540	672	93
Number of household	9,654	268	447	211
Occupation (%)				
Farmer	37. 5	6.3	51.9	83.5
Trader	5.8	3.0	12.5	7.0
Civil servant	29.9	6.7	17.2	5.4
Casual labor	12.1	84.0	15.3	4.2
Other	14.7	-	3.1	-
Religion (%)				
Islam	87.6	94.7	91.1	98.7
Protestant	9.7	2.7	1.3	1.3
Buddhist/Hindu	2.1	-	-	-
Other	0.1	2.6	-	-
Land Use				
Avg. area (Ha)	18,512	1,779	315	200
Rice field (%)	13.2	-	45.4	5.0
Estate small (%)	9.1	1.6	14.9	62.0
Estate company (%)	61.5	92.0	-	-
Housing (%)	16.2	6.4	39.7	33.0

Source: Statistic Book. 1988. Sub-District Galang

TABLE 2

SIZE AND TYPE OF HOUSEHOLDS

	Total	Landless	Subsistence	S-Commercial
Size (mean & N)	6.4 (120)	5.1 (49)	7.1 (37)	7.0 (34)
Type of Household (% & N)				
Nuclear family	69.2 (83)	81.6 (40)	32.4 (12)	52.9 (18)
Extended Family	30.8 (37)	18.4 (9)	32.4 (12)	47.1 (16)
Total	100.0 (120)	100.0 (49)	100.0 (37)	100.0 (34)

TABLE 3

FARM SIZE OF HOUSEHOLDS WHO OWNED LAND (HECTARES)

	Overall	Landless*	Subsistence	S-Commercial
Number & % of total	99 (70.7)	28 (57.1)	37 (100.0)	34 (100.0)
Maximum	7.40	.30	.96	7.40
Minimum	.0	.01	.30	1.00
Means	.92	.1	.62	1.99
Type of Land				
Dry field		.18 (30.6)	.57 (48.6)	1.78 (91.2)
Rice land		.13 (16.3)	.38 (70.2)	.48 (44.1)
Home garden		.08 (28.6)	.17 (100.0)	.29 (100.0)

* only 28 out of 49 sampled owned land.

TABLE 4

TIME ALLOCATION AMONG HOUSEHOLD MEMBERS ON HOUSEWORK, IN MINUTES/DAY
(MEANS AND N)

	Overall	Landless	Subsistence	S-Commercial
Male:				
Head of household	62 (77)	70 (39)	49 (20)	62 (18)
Children < 14 yr.	53 (22)	38 (8)	81 (7)	53 (7)
Children > 14 yr.	70 (40)	72 (9)	61 (15)	70 (16)
Female:				
Spouse	261 (112)	255 (44)	283 (36)	261 (32)
Children < 14 yr.	118 (26)	78 (8)	130 (10)	118 (8)
Children > 14 yr.	212 (42)	166 (12)	183 (14)	212 (16)

TABLE 5

HOUSEHOLD'S MEMBER RESPONSIBILITIES IN HOUSEWORK ACTIVITIES
(BY PERCENTAGES AND NUMBER)

Responsibility	Food Preparation	Cleaning Houses	Fetch Water	Fetch Wood	Washing Clothes	Shopping
Male:						
Father	.8 (1)	5.0 (6)	48.3 (58)	57.5 (69)	2.5 (3)	16.7 (20)
Son <14 yr.	.0 (0)	4.2 (5)	10.0 (12)	14.2 (17)	2.5 (3)	.0 (0)
Son >14 yr.	2.5 (3)	5.0 (6)	22.5 (27)	29.2 (35)	2.5 (3)	.8 (1)
Female:						
Mother	90.8 (109)	72.5 (87)	19.2 (23)	12.5 (15)	74.2 (89)	80.0 (96)
Daughter <14 yr.	9.2 (11)	17.5 (21)	1.7 (2)	2.5 (3)	9.2 (11)	.0 (0)
Daughter >14 yr.	29.2 (5)	33.3 (40)	8.3 (10)	5.8 (7)	25.8 (31)	5.8 (7)

TABLE 6

HOUSEHOLD MEMBERS RESPONSIBILITY
IN AGRICULTURAL ACTIVITIES* (PERCENTAGES & N)

Responsibility	Land Preparation	Planting	Irrigating	Fertilizing	Weeding	Harvesting
Male:						
Father	60.8 (73)	47.5 (57)	50.0 (60)	65.0 (78)	58.3 (70)	75.8 (43)
Children < 14 yr.	3.3 (4)	1.7 (2)	.0 (0)	.0 (0)	2.5 (3)	2.5 (3)
Children > 14 yr.	20.0 (24)	14.2 (17)	10.0 (120	14.2 (17)	8.3 (10)	12.5 (15)
Female:						
Mother	16.7 (20)	53.3 (64)	6.7 (8)	15.8 (19)	42.5 (51)	40.8 (49)
Children < 14 yr.	.0 (0)	3.3 (4)	.0 (0)	.0 (0)	2.5 (3)	1.7 (2)
Children > 14 yr.	.8 (1)	5.8 (7)	.0 (0)	.0 (0)	2.5 (3)	5.0 (6)
Hired Labor:	20.8 (25)	15.8 (19)	.0 (0)	2.5 (3)	4.2 (4)	22.5 (27)

* Activities for peasant households who have rice-field.

TABLE 7

HOUSEHOLD MEMBER'S RESPONSIBILITY ON AGRICULTURAL ACTIVITIES*
(PERCENTAGES & N)

Household Members	Tapping	Collecting	Weeding	Fertilizing	Marketing
Male:					
Father	76.4 (26)	73.5 (25)	76.5 (26)	85.3 (29)	76.5 (26)
Children < 14 yr.	1.7 (2)	2.9 (1)	8.8 (3)	.0 (0)	.0 (0)
Children > 14 yr.	26.5 (9)	17.6 (6)	17.6 (6)	20.6 (7)	8.8 (3)
Female:					
Mother	14.7 (5)	52.9 (18)	44.1 (15)	5.9 (3)	14.7 (5)
Children < 14 yr.	2.9 (1)	5.9 (2)	5.9 (2)	.0 (0)	.0 (0)
Children > 14 yr.	2.9 (1)	8.8 (3)	8.8 (3)	.0 (0)	.0 (0)
Hired Labor:	29.4 (10)	29.4 (10)	8.8 (3)	14.2 (5)	20.6 (7)

* Activities for households that owned perennial crop.

TABLE 8

HOUSEHOLD MEMBER'S RESPONSIBILITIES FOR LIVESTOCK ACTIVITIES
(PERCENTAGES & N)

Responsibility	Cut Grasses	Herding	Cleaning Barn	Bathing
Male:				
Father	41.7 (50)	2.5 (3)	44.2 (53)	47.5 (57)
Children < 14 yr.	5.8 (7)	29.3 (35)	11.7 (14)	5.8 (7)
Children > 14 yr.	20.8 (20)	15.8 (19)	15.0 (18)	19.2 (23)
Female:				
Mother	1.7 (2)	4.2 (5)	34.2 (41)	2.5 (3)
Children < 14 yr.	.0 (0)	5.8 (7)	3.3 (4)	.0 (0)
Children > 14 yr.	.8 (1)	1.7 (2)	1.7 (2)	.0 (0)
Other Family Members	3.3 (4)	10.0 (12)	4.2 (5)	.0 (0)

TABLE 9

TIME ALLOCATION AMONG HOUSEHOLD MEMBERS
IN LIVESTOCK ACTIVITIES
(MEANS AND N) MINUTE/DAY

Household Members	Overall	Landless	Subsistence	S-Commercial
Male:				
Head of Household	115 (78)	155 (35)	76 (24)	90 (19)
Children < 14 yr.	221 (39)	171 (5)	220 (22)	243 (12)
Children > 14 yr.	162 (28)	188 (7)	146 (11)	163 (10)
Female:				
Spouse	74 (42)	32 (16)	91 (18)	118 (8)
Children < 14 yr.	166 (8)	245 (2)	135 (3)	145 (3)
Children > 14 yr.	93 (5)	105 (2)	120 (2)	15 (1)
Other Family Members	163 (15)	91 (2)	173 (9)	180 (4)

TABLE 10

HOUSEHOLDS ENGAGED IN ARTISAN PRODUCTION*

	Overall % (N)	Landless % (N)	Subsistence % (N)	S-Commercial % (N)
Engaged in Artisan Prod.	29.2 (35)	22.4 (11)	37.8 (14)	29.4 (10)
Not Engaged in Artisan Prod.	70.8 (85)	77.6 (38)	62.2 (23)	70.6 (25)
TYPE:				
Country Store	11.2 (15)	8.2 (4)	16.2 (5)	20.6 (6)
Home Industry	18.0 (20)	14.3 (7)	24.3 (9)	8.8 (3)
TIME:				
Every Day	20.8 (25)	16.3 (8)	21.6 (8)	26.5 (9)
Seasonal	8.3 (10)	6.1 (3)	16.2 (6)	2.9 (1)

* Artisan Production includes making roofs, tiles, home-made cake ,etc., for selling.

TABLE 11

FAMILY LABOR SUPPLY IN PEASANT HOUSEHOLDS (PERCENTAGES & N)

Family Labor Supply[1]	Overall	Landless	Subsistence	S-Commercial
Less Than 4	17.5 (21)	28.6 (14)	2.7 (1)	17.6 (6)
4 - 6	46.7 (56)	51.0 (25)	54.1 (20)	32.4 (11)
More Than 6	35.8 (43)	20.4 (10)	43.2 (16)	50.0 (17)

[1] members 6 years and older

TABLE 12

DISTRIBUTION OF HOUSEHOLD IN AGRICULTURAL EARNING ACTIVITIES BY FARM-SIZE (PERCENT AND N)

	Overall	Landless	Subsistence	S-Commercial
Head of Household	56.7 (68)	89.8 (44)	54.0 (20)	11.8 (4)
Spouse	25.0 (30)	36.7 (18)	27.0 (10)	5.9 (2)
Son >14 yr.	13.3 (16)	20.4 (10)	13.5 (4)	2.9 (1)
Daughter > 14 yr.	3.3 (4)	4.1 (2)	4.1 (2)	.0 (0)

TABLE 13

AVERAGE TOTAL OF MONTHS/YEAR FOR HOUSEHOLD MEMBER TO ENGAGE IN EARNING ACTIVITIES (MEANS)

	Agricultural Activities			Non-Agricultural Activities		
Household Member	Landless	Subsistence	S-Comm.	Landless	Subsistence	S-Comm.
Head of Household	10.7	4.4	1.1	.9	1.9	.8
Spouse	4.1	2.4	.7	.2	.6	.0
Son >14 yr.	2.4	1.5	.4	1.1	2.0	.7
Daughter >14 yr.	.3	.4	.0	.2	3.0	1.3

TABLE 14

TOTAL NUMBER OF HOUSEHOLD'S MEMBER PARTICIPATE IN WAGE-EARNING ACTIVITIES (PERCENTAGES & N)

Number of Household Members	Overall	Landless	Subsistence	S-Commercial
None	21.7 (26)	.0 (0)	8.1 (3)	67.7 (23)
One	40.8 (49)	44.9 (22)	51.4 (19)	23.5 (8)
Two	25.0 (30)	40.8 (20)	21.6 (8)	5.9 (2)
Three	11.7 (14)	14.3 (7)	16.2 (6)	2.9 (1)
Four	.8 (1)	.0 (0)	2.7 (1)	.0 (0)

TABLE 15

SOURCES AND YEARLY INCOME IN PEASANT HOUSEHOLDS
(MEANS & PERCENTAGES)

Source of Income	Overall	Landless	Subsistence	S-Commercial
Total (Rp. 000,-)*	2037 (100)	2076 (100)	1602 (100)	2432 (100)
Farming Activities	631 (31.2	44 (2.1)	695 (43.4)	1389 (57.1)
Selling Livestock	283 (13.9)	274 (13.2)	194 (12.1)	409 (16.8)
Wages from Farm Labor	774 (37.8)	1538 (741)	330 (20.6)	192 (7.9)
Wages from Non-Farm Labor	305 (15.4)	210 (10.1)	340 (21.2)	401 (16.5)
Remittances	44 (1.6)	10 (.05)	43 (2.8)	41 (1.7)

* 1 US $ approximately equal to 1,850.00.

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