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**Bio-Social Roles in Peasant Small Ruminant Production
The Importance of Children and Women
in Secondary Economic Activities**

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in Secondary Economic Activities**

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ABSTRACT

Previous research has concluded that women have primary responsibility for small ruminant production in Indonesia. This research, however, has suffered from the lack of an appropriate methodology and theoretical base. We address both of these issues in this paper. We find, using participant observation techniques versus surveys for data collection that women in general, and especially adult women, play a minor role in small ruminant production. Conversely, we find that young males have the primary responsibility for small ruminant care. This is a theoretically sound finding as a large body of literature on peasant household production predicts secondary economic activities--like small ruminant production--will be the domain of the children in the peasant household, not adults whose time is spent in primary economic activities.

**Bio-Social Roles in Peasant Small-Ruminant Production:
The Importance of Children and Women
in Secondary Economic Activities**

INTRODUCTION

In developing countries the specific roles of women and children in agricultural production contribute significantly to peasant household production capacities and strategies (UNDP, 1980; Comitas, 1973; Stoler, 1977; Benholdt-Thomsen, 1982; and Friedmann 1978; 1980; 1986). Even though their importance is generally recognized their contribution is often under-represented both in official statistics and self-disclosure techniques of data gathering. The UNDP (United Nations Development Programme 1980:8) report shows that the contribution of women to official statistics—like GNP—often is not reported because "...so much of it is performed in the family setting. Additionally, it is often of a subsistence nature...By contrast, all able-bodied men are generally enumerated as economically active (not infrequently their work input is less than that of women)."

The UNDP (1980) particularly notes choices in methodological techniques of data gathering may exacerbate under reporting of women's (and children's) contribution to economic production. "Typically, simple retrospective questions are asked concerning the amount and kind of work performed the previous week, say. The questionnaires leave no room, and the interviewers have no time or instructions for how to handle...complex stories (UNDP, 1980:10; see also Comitas, 1973)."

The above observations are directly applicable to the Indonesian Small Ruminant CRSP (Collaborative Research Support Program) research findings on women's and children's labor roles in household sheep production. These findings are often confusing and inconsistent. For example, using survey methodology, Sabrani et al., (1982:2) reported that "Because small ruminants are only a secondary occupation in most households, the wife [sic] has the most important role working with small ruminants." Sabrani also reports that around 45% of women in West Java participated in some aspects of small ruminant production. On the other hand, using the same methodology, Wahyuni and Gatenby, (1985) report that 87% of women in the same general area were involved with small ruminant production. They also report that women spent 9.8 hours a day "Running the household"; 1.9 "Farming"; 1.8 in "Raising small ruminants"; 30 minutes in "Raising other animals"; 1.2 hours in "Social activities"; and 6.6 hours "Sleeping/ Resting." Priyanti and Bilinsky (1989), however, using the same categories and methodology, found women spend 5.91 hours a day in running the household (a difference of 3.9 hours); 3.02 hours in farming (a difference of 1.1 hour); 1.27 hours raising small ruminants (a difference of 1/2 hour); 25 minutes in raising other animals; 35 minutes in social activities (a difference of 1 hour 20 minutes); and 8.50 hours sleeping/resting (a difference of 1.9 hours).

In another study, similar to the those cited above, Wahyuni et al., (1992) looked at women's participation in small ruminant production between small to medium-large holders in West Java. They present a frequency table on page 4 titled "The Division of

Labor in the Family Farm Small Ruminant Raising." Using the following seven categories: Provide feed; Cleaning the barn; Collecting forages; Carrying forages; Mating the animals; Helping the delivery of lambs; and Tending the sick animals, they report frequencies and percentages for husbands, wives and children between medium to large holders and small holders. The table reports that medium to large holder husbands in the category "Provide feed." had a "percent frequency" of 100%, and for small holder husbands--83%. For wives of medium to large holders 100%, and for small holders--81%. Children of medium to large holders had 50% versus 56% for small. An immediate concern with these figures is that there is no way to interpret their meaning, as there is no indication what is being compared against what. We can only assume what is meant by the numbers is that all men surveyed in the medium to large holder group provided feed for small ruminants as did all women in the same group. The other categories presented in the table reflect similar problems in interpretation.

Our concern with these previous studies is not that differences in time allocation were found but the reasons for those differences. Acknowledging that differences may exist from one location or research site to another, we feel there are two serious shortcomings in the reports cited above which must be addressed. First, the information collected is heavily influenced by the method of choice used in gathering it. Second, there is a conspicuous lack of a theoretical framework in which to couch, thus interpret, the data. A theoretical framework should allow for greater generalizability across locations. In other words, by couching the findings in a larger theoretical context, the researchers can expect certain results. If the theory is sound (as shown through the empirical tests of previous research), variability in results, despite location, should be minimal.

As a result of these two shortcomings we feel the conclusions drawn from these studies--and their implications to the SR-CRSP concerning recommendations for a more successful program--need to be reevaluated as the numbers reported go far beyond information only. Information is intended to create policy recommendations and inform practices by SR-CRSP personnel and programme participants. If policy is being made on inconsistent and/or flawed information the ultimate success of the project--benefit for the small-holder--is at stake.

As mentioned above, these previous studies have made no attempt to tie results into an existing theoretical framework in order to interpret their meaning. Without a theoretical interpretation the findings remain numbers only, subject to random interpretation at best and/or confusion. Such findings represent little consistent, thus useful information which can be intelligently applied to the SR-CRSP project. Numbers without a theoretical context to frame them fail to explain WHY something is the way it is. And "WHY" explanations are the most important information the sociological component can offer to the larger project. In the following sections we explain our rationale for the above two criticisms and our response to them.

Problems with the Methodology of Choice

We feel one reason for the mixed bag of research results presented above stems from the research methodology used--it has relied heavily on survey techniques.

However, in a culture which strongly sanctions personal assertiveness--like Indonesia, and particularly the Javanese sub-culture--the likelihood of a person accurately reporting the type and extent of labor he/she performs is minimal. In such a cultural environment one would expect personal reports of labor to be consistently underestimated and/or credited to the male head of the household.

There are many other potential problems with survey research as the method of choice that may contribute to the quality of the data gathered in Indonesia. The lack of trained interviewers. Interviewers can greatly influence respondents' answers just by how quickly or slowly they speak (see Cannell and Fowler, 1964; Fowler, 1966). "For example, interviewers who rush through interviews encourage respondents to answer questions quickly. Interviewers who read questions slowly indicate to respondents, in a nonverbal way, their willingness to take time to obtain thoughtful, accurate answers; consequently, they obtain more accurate answers (Marquis and Cannell, 1971) (Fowler, 1984:108-109)." The survey research literature is also very clear on the problems the presence of additional persons can cause when a survey is being administered (see Hyman, 1975). Simply the addition of one more person can dramatically alter responses. If the additional person present is also higher in status or authority, the responses are altered even more. Rarely, if ever, in Indonesia--where the administration of a survey would be seen as a major local event--would the opportunity arise to interview household members alone--one on one. This would be especially true for the female household members and children who have less status in the home, and thus would have less cultural validity to talk to outsiders.

Another problem, as mentioned in the UNDP report above, survey research leaves little or no room for the complex stories of people's daily life events. These cannot be compressed into a simple YES or NO answer to a series of questions which may never hit at the real issues in the first place. This brings us to our second criticism. Without a guiding theoretical framework to direct the researcher(s), the types of questions asked on a survey are simply a hit or miss situation at best. The theoretical framework provides a reference point indicating what may or may not be important and how each aspect being studied should "hang together" with all others.

Theoretical Framework

The theoretical framework which guides our research as well as our choice of methodology is peasant household labor allocation as a survival strategy. Benholdt-Thomsen, (1982) and Friedmann (1978; 1980; 1986) conclude that 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 family members participating in production and consumption or both. For example, the production of small-ruminants can be for both family consumption and/or for marketing outside to increase family income. Furthermore, Benholdt-Thomsen explains that peasant household labor allocation strategies takes three main forms: (1) members who work in subsistence agriculture are for all or part of the year wage workers in off-farm jobs as well; (2) household products can be sold on the market, and (3) owners of capital grant credit to peasant households thereby ensuring the production of household items for markets.

Friedmann (1978; 1980; 1986), expands on this basic theme. She views the peasant household (not just the male head) as the basic unit of production. All major production inputs are supplied by the entire family. Each member plays a role in household production with roles determined by the economic importance of the production activity. In other words, the division of household labor is more determined by a hierarchy of household needs--approached through age--than by gender. She argues 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 production i.e., providing food for family members and generating funds to replace, renew or repair the technical elements of production. Therefore, household labor allocation strategies are directly tied to the potential level of economic profitability and/or benefit of a given activity. Those activities which have lower potential economic benefit for the family receive less labor allocation by adult members despite their gender. Adult members can generate greater returns than children on key economic activities for the same amount of family inputs. Children of both sexes on the other hand, take on an increasingly important role in secondary economic activities as their labor inputs are not seen as being as important as adult members' but crucial to secondary activities. As mentioned above (see Sabrani, et al., 1982) small-ruminant production in Indonesia is most often recognized as a secondary economic activity. Therefore, we would expect children of both sexes to play the major labor role in small-ruminant production--not adult women and/or men. We would also expect families with very young (or no children) to be less involved with small-ruminant production, with perhaps the exception of extended family hires of children.

Research Methodology

With the potential problems of survey research discussed above being compounded by the cultural peculiarities of Indonesia, we felt it was vital to abandon the surveys and get "into the field". Here we would witness first hand the daily routines--the complex stories if you will--of the family members, particularly the women and children. However, to further test our concerns with the survey technique in this setting, we also built labor allocation questions into a series of surveys to be administered and used as a comparison base. In this paper the findings from the survey data are compared with findings from the same and similar populations using observational data.

Our Method of Choice: Participant Observation

To address the issue of labor allocation of women and children in the peasant household as an economic strategy, we adopted and prepared a methodological approach which allowed our Indonesian women researchers to "live" with a family for a day and document the tasks preformed by the members--"participant observation".

Participant observation allows first hand access to the social situation being studied. In this case labor allocation. It also allows access to the meanings people assign to their social situations. In other words, who spends what amount of time doing what, and what does that mean to them? According to Becker:

The participant observer gathers data by participating in the daily life of the group or organization he studies. He watches the people he is studying to see what situations they ordinarily meet and how they behave in them. He enters into a conversation with some or all of the participants in these situations and discovers their interpretations of the events he has observed. (Becker, 1958:652)

Burgess (1985) further states that "The value of being a participant observer lies in the opportunity that is available to collect rich detailed data based on observations in natural settings" (p.79). In other words, the information gathered is not compressed into neat categories or questions which may or may not reflect the natural social setting let alone its importance to the participants in it.

We chose participant observation for this research. Again, the overriding concern with existing survey research findings was inaccurate information and failure to connect data gathering to a theoretical base. By using participant observation researchers could see first hand which family members spent what amount of time doing what. The observational research was conducted with twenty four households in two different areas. In each of the two areas, 12 families which had received sheep from the SR-CRSP project were observed. The two areas were: Outreach Project (ORP) farmers in Sei Putih North Sumatra; and Outreach Project Membang Muda (OPMM) also in North Sumatra.

Though we chose to concentrate our efforts on the observational studies, we also prepared and administered a standardized survey instrument in the two populations. This allowed us to examine the differences in the results from the two techniques for the same populations. In ORP, the observational studies of the twelve families occurred first and then was followed by the survey study. In OPMM we reversed the order—we did the survey first and the observations second. This allowed us to check our assumptions about the accuracy of the survey data vis-a-vis the observational data by accounting for any possible biasing effect of one technique on the other (see Campbell and Stanley, 1966 for discussion on threats to internal validity). The data obtained from these two methodological techniques is to serve two purposes for the SR-CRSP: First, it should give a much clearer picture of actual labor allocation within the household. This should help in determining the relative ability of different types of families to adopt the SR-CRSP technology. Second, it should show why, on a comparative basis, the survey research which has been done in this area is not as appropriate a choice in methodology in addressing the issue. This, then should clear the water for more accurate and usable research results in the future.

As a caveat, we are aware of the small sample size of this research, however, we are confident even with the small size the results will be more consistent than previous research and will show patterns consistent with our theoretical framework. We were also constrained by the actual number of families which had received SR-CRSP sheep (12 in each area) and by time and available "women power".

For the observations, three women researchers were selected and trained to observe the twenty four farm households. Each researcher was assigned to stay with one

family for a 12 hour period, (6.00 am to 6.00 pm) and document the various tasks performed by household members and the amount of time spent doing them. In reality, observations were conducted twice for each of the twelve families. For the first observation, farmers were informed one day before the observation that a female researcher would be observing them the following day. For the second observation, observers pretended to be observing previous participants' neighbors. In reality, they were observing the same families they had before, only they did not tell them so. This acted as a validity check. A well known phenomenon in sociological research called "The Hawthorne Effect," (see Roethlisberger and Dickson, 1939) argues when people know they are being studied, they can purposely alter their behavior to conform to their perception of the researcher's expectations. Therefore, by informing the farmers that a researcher would be observing them, they could have altered their behavior in anticipation of what they thought the researcher was looking for. This is a very real concern in a project like the SR-CRSP. Any time a researcher--no matter who it is--shows up to do research with the farmers or their animals, farmers perceive them as holding the purse strings to the sheep; or at least being one step closer to them than they themselves are. As farmers appear to be very willing to expand their holdings at no or little investment of their capital, they will often answer questions based on the assumption that if answered correctly--i.e., that sheep are good, we like them, etc.--they will have a better chance of getting more sheep.¹

Between the two different observational exercises, researchers recorded all household activities observed during the two days, particularly noting those of the wife and children. These activities were found to include labor and time allocation for activities such as household maintenance activities i.e., cooking, washing dishes, washing clothes, ironing, sweeping the floor, and sweeping the yard. Other types of activities included: on and off farm activities; social activities; small ruminant activities; and resting. All were recorded.

After the two observational periods in ORP, we conducted a survey of the same population. By comparing the two we felt we could get a better idea of inherent biases or problems in the two techniques. We also felt by so doing we would likely bias the research toward more accurate reporting of family labor roles and time allocations on the surveys. Respondents were aware that the researchers who had observed them had a good idea of their daily routines and thus would take more care in reporting them with greater accuracy.

¹. In the survey and interview phase of this research it became very apparent that the participation of the co-investigator--an American scientist--was biasing the results. When he interviewed people who did not keep small ruminants and asked them questions about what other types of activities would best help them increase their family income, inevitably they answered "Sheep!" Yet when Indonesian counter parts asked the same question more often people expressed an interest in large ruminants, like cows. The American scientist was perceived as the one in authority to give out sheep, therefore all the questions asked of the farmers were answered with that assumption in mind.

Research Settings

The study was conducted in July and August of 1992. As mentioned, it involved two different groups of farmers who had received sheep from the SR-CRSP project. The first group was composed of 12 rice farming families from three villages near the SBPT in Sei Putih: Pulau Gambar, Pulau Tagor and Jaharun A in Sub-District Galang. The twelve families chosen for the study are all part of an Outreach Project (ORP) started 1987. Outreach projects are "on-farm" animal research settings, in which SR-CRSP supported ewes (bred by the SR-CRSP), a technology package and technical advice (in the areas of breeding, feeding and forage production) are examined in a natural setting--out of the laboratory. In all outreach projects farmers are visited at least once a month to monitor progress and to collect production data.

The second population for which data was gathered was also an outreach project located in Membang Muda, Gunung Lonceng (OPMM or Outreach Project Membang Muda). As with the ORP outreach project above, twelve people in OPMM received SR-CRSP sheep. Unlike the ORP population, these twelve participants' primary agricultural activity is rubber harvesting--not rice farming. These twelve families were surveyed with an identical survey instrument as the ORP group. However, they were surveyed first and then observed. The altering of the order between the two populations (survey first or observation first) allowed us to examine if any obvious biases existed by doing one or the other first.

Results and Discussion

Table 1 reports the results of the participant observations for the twelve ORP families studied. As can be seen from Table 1, adult women, particularly the female head of household, play a very minor role in small ruminant activities. Only two of the female heads of household and two families with female children over the age of 14 out of the twelve families observed were involved with small ruminant care. For the female heads small ruminant care only amounted to an average of 35 minutes a day and for the two families which had females over age 14 caring for small ruminants it averaged 2 hours and 15 minutes a day. Contrary, therefore, to previous conclusions noted above (Sabrani et al., 1982) that women play the major role in small ruminant production, younger children of both sexes assumed these tasks with male children assuming the majority (an average of 3 hours for eight of the twelve families. While females in this category averaged the same amount of time--3 hours--only three families of the twelve had younger female children engaged in this activity). These findings support the theory discussed above, i.e., that secondary economic activities would be allocated to the children while adults engage in those of primary importance. Small ruminants being of secondary importance were thus handled mostly by children.

TABLE 1

Observational Results for ORP Household Labor and Time Allocation by Age and Gender. Reported in Average Hours and Minutes Per Day. (N) = Number of Families out of 12 with Representatives in the Category.

ACTIVITY	Household Head		Children < 14 Yr.		Children > 14 yr.	
	Male	Female	Male	Female	Male	Female
Maintain Home	1.24 (5)	4.35 (12)	-	3.00 (5)	1.30 (7)	5.00 (6)
Farming/On-Off Farm Job	7.00 (12)	5.15 (11)	-	-	6.00 (6)	4.30 (4)
Social Activity	1.55 (4)	1.48 (8)	5.49 (8)	4.42 (5)	3.20 (3)	2.30 (2)
Small Ruminant Care	1.45 (8)	.35 (2)	3.00 (8)*	3.00 (3)	3.45 (4)	2.15 (2)
Resting	1.45 (12)	1.35 (11)	1.41 (8)	1.49 (5)	1.40 (8)	1.40 (6)

* All eight families had hired young males from extended family to tend the sheep.

On and off Farm activities were clearly the most important in terms of time allocation by adult members for all twelve families. All twelve male heads spent an average of 7 hours a day on primary economic activities. Eleven of the female heads of household spent an average of 5 hours and fifteen minutes a day. Additionally, none of the children under 14 years of age participated in on and off farm jobs. But those over 14, both male and female, (six and four respectively) spent an average of six and four and a half hours in this category of activities.

Most importantly for our purposes, small ruminant care is almost exclusively the responsibility of the children--older and younger, male and female--in terms of actual time allocated to that economic activity. Eight families actually hired male members under 14 years old from their extended family to care for the small ruminants.

Further examination of Table 1 shows that for all other activities--besides on and off farm jobs, small ruminant care, and rest breaks--labor allocation roles and times were very different for each group. All women over 14 years old spent considerable more time keeping the home than men of any age and younger girls. And children of both sexes and ages spent considerable more time than their parents in social activities. Rest breaks during the day were almost identical for all groups.

Table 2 reports the observational data from the rubber harvesting families of OPMM. As can be seen, the results are fairly consistent with their rice-farming counterparts in ORP. For example, on and off farm jobs constituted almost 7 hours of the males head of household's day in OPMM (6 hours and 49 minutes). In the ORP population it was 7 hours as well. There were fewer female heads that worked on and off farm jobs in OPMM than ORP (8 compared to 11) and they worked about 45 minutes

less at these tasks than did their ORP counter parts. Perhaps the major difference between the two groups was the amount of time spent in social activities. It was much higher for all groups in OPMM than for those in ORP.

Again, however, our concerns were primarily with small ruminant care. As anticipated, children of both gender played a more significant role than did adults in general. In eleven of the twelve families, males under the age of 14 spent an average of 3 hours and 45 minutes a day in small ruminant care. Females in the same age group spent 1 hour and 45 minutes but were only represented by two families of the twelve. The numbers of families represented and the actual time allotted by younger children in OPMM is therefore very similar to the families in ORP. In the OPMM group there were no families with older female children engaged in small ruminant care while older males were very similar to the ORP group in terms of numbers (4) and time allocated (3 hours 4 minutes for ORP, and 3 hours 45 minutes for OPMM).

TABLE 2

Observational Results for OPMM Household Labor and Time Allocation by Age and Gender. Reported in Average Hours and Minutes per Day. (N) = Number of families out of 12 with representatives in the category.

ACTIVITY	Household Head		Children < 14 Yr.		Children > 14 yr.	
	Male	Female	Male	Female	Male	Female
Maintain Home	.54 (4)	5.02 (12)	-	1.31 (10)	1.15 (1)	2.56 (6)
Farming/On-Off Farm Job	6.49 (11)	4.25 (8)	-	-	5.34 (4)	3.15 (1)
Social Activity	2.04 (11)	2.28 (10)	7.15 (12)	6.18 (10)	6.07 (8)	7.03 (6)
Small Ruminant Care	.50 (6)	.25 (6)	3.45 (11)	1.45 (2)	3.04 (4)	-
Resting	2.24 (12)	1.55 (12)	1.55 (12)	2.38 (10)	1.38 (7)	1.24 (6)

Tables 3 and 4 report the findings from the surveys in ORP (Table 3) and OPMM (Table 4). Unfortunately, the survey questions did not allow reporting in two categories of older and younger children. There is simply one category of male and female children.

As seen in Table 3, the contribution of males (young and old) to activities traditionally associated with women's roles were under-reported in the surveys compared to the observational data. Male heads of household in ORP did not report any household maintenance activities on the survey. Yet, observational data showed that five of them averaged almost one and a half hours a day in such activities. Male children were also under-represented in this category by the survey. The survey showed only three families reported male children engaged in household maintenance activities with an average of 40 minutes a day. The observational data on the other hand shows that seven of these same

families actually had older male children contribute an average of one and a half hours a day to these activities. Also, as hypothesized, the woman's contribution to household maintenance was underestimated in the survey data. Table 1 reports all twelve women averaged four hours and thirty five minutes a day in this area where the survey reported an average of over one hour less (3.20). The amount of time spent in social activities for mothers and fathers was also underestimated in the survey as compared with the observational data. However, the areas of "On and Off Farm Jobs" and "Resting" are fairly consistent for all categories in both the observational and survey data.

TABLE 3

Survey Results for ORP Household Labor and Time Allocation by Age and Gender Reported in Average Hours and Minutes per Day. (N) = Number of families out of 12 with representatives in the category.

ACTIVITY	Household Head		Children	
	Male	Female	Male	Female
Maintain Home	-	3.20 (12)	.04 (3)	3.15 (8)
Farming/On-Off Farm Job	7.30 (12)	6.00 (12)	5.07 (8)	5.00 (8)
Social Activity*	.45 (4)	1.00 (12)	5.30 (12)	5.30 (12)
Small Ruminant Care	2.07 (11)	.35 (8)	4.17 (11)	2.48 (5)
Resting	1.30 (12)	1.00 (12)	2.00 (12)	1.30 (12)

*Social activities for children also include school attendance.

The results on small ruminant care and other activities from the OPMM survey are reported in Table 4. A familiar pattern appears--male children are the primary care takers of small ruminants (almost 4 hours a day for 10 of the families). In all four data sets the findings on small ruminant care were surprisingly consistent with one large exception--the amount of time female children in OPMM spend in caring for small ruminants (44 minutes). Judging from the consistency of results between the two observational and survey techniques on small ruminant care, the fact that females in both the OPMM survey and observational studies were less involved in small ruminant care compared to the ORP group may be an indicator that in the rubber plantation female children do not participate as much in small ruminant production as do their counterparts in the rice-fields. Something of interest that needs to be examined in much greater detail.

For the other categories, a reversal of the trends reported above occur. The survey results over-estimate labor allocation for most of the groups when compared to the observational data. Perhaps this is a result of the sequence of the data collection with the survey being administered first, or it could reflect an actual difference between the rice-

farming and rubber-harvesting populations. This too is something that needs to be examined in greater detail.

TABLE 4

Survey Results for OPMM Household Labor and Time Allocation by Age and Gender Reported in Average Hours and Minutes per Day. (N) = Number of families out of 12 with representatives in the category.

ACTIVITY	Household Head		Children	
	Male	Female	Male	Female
Maintain Home	1.42 (4)	6.48 (12)	1.15 (6)	5.24 (10)
Farming/On-Off Farm Job	8.30 (11)	5.35 (9)	6.35 (6)	5.15 (5)
Social Activity*	3.05 (11)	1.55 (12)	7.30 (12)	7.49 (12)
Small Ruminant Care	1.11 (12)	.24 (8)	3.55 (10)	.44 (4)
Resting	1.15 (11)	1.35 (12)	2.48 (12)	2.05 (12)

In conclusion, having a well defined theoretical framework by which to interpret the results is the key to our analysis. First, the results reconfirm other research which shows small ruminant production is of secondary economic importance to Indonesian farmers. The theory of strategic labor allocation by peasant families predicts adult members of the family will not allocate as much time to secondary economic activities as they will to primary ones. Our findings support this. Second, children of both sexes play a major role in secondary economic activities. Our results also confirm that small ruminant production is the domain of the children--not the wife or husband--and in particular, the domain of younger boys. Adult heads of households often commented to the observers that they wanted their children to have specific responsibilities which would contribute to the welfare of the family. Care of small ruminants provides such an opportunity.

Clearly our results differ from previous research conducted by SR-CRSP scientists in this area. We are encouraged that even with such a small sample, findings are highly consistent with expectations as directed by the theoretical framework used.

There are some direct implications to these preliminary findings. First, those scientists conducting social science research in the SR-CRSP project must reconsider their methodology of choice--surveys. Even though the survey results were not very different from the observational results on the issue of small ruminant care, they did show predicted under-estimating of women's contribution to certain activities as well as men's to household maintenance in ORP. Ultimately, this means a training session on participant observation would be very helpful to our Indonesian collaborators so they can

further this type of research with bigger samples. Second, policies and actions which are currently in use based on previous research on who does what and in what amounts with the small ruminants must be reevaluated. For example, technology packages that cannot be easily adopted and put into everyday practice by younger children are doomed to failure in a system where children play the primary--mostly unsupervised--role. Additionally, future research must examine more closely differences between the rice farmers and the rubber farmers. This examination could include levels of household income as it may pertain to the need of older children (especially the females) to be involved or not involved in small ruminant production versus other income generating activities. Our suspicion--which needs to be empirically verified in future research--is that rubber farmers may have more primary economic activities that older children can be engaged in more often than rice farmers. For example the applying of stimulant to trees, the cleaning of latex cups and even rubber tapping. All of these issues directly affect how future technology packages should be constructed and to whom they should be directed. These are important questions (in need of much more data gathered and analyzed) for the SR-CRSP in Indonesia.

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