

Chapter IV

EXPLORATION FOR INTER-RELATIONSHIPS AMONG SIGNIFICANT VARIABLES

The previous chapter presented the results of the statistical tests for variables closely related to labour utilization for each of the five villages. The purpose of this chapter is to explore the already identified significant variables for possible inter-relationships, and to try to identify more clearly, if possible, the origins of the differences between sample and population. The treatment will not be statistical because the very small sample sizes makes this meaningless.

BAN CHUNG

In the preceding chapter, it became apparent that in Ban Chung there were significant differences between sample and population households with land holdings. In particular, there were significantly higher mean numbers of persons in the sample households involved in part-time agricultural employment and in full-time non-agricultural employment.

The agricultural employment available in Ban Chung would consist mainly of pulling rice seedlings, transplanting rice, and harvesting rice, and it is reasonable to assume that each household worries about its own rice production before its members are permitted to go out to work for wages on other peoples' crops. The situation with respect to non-agricultural

employment has different constraints, principally sufficient time free from agricultural tasks, and opportunities for employment, but these constraints give no more indication, in view of what we already know about sample and population, of why the sample households were more heavily involved in this kind of employment.

Once the rice growing season is over, there is little enough work to do on the farm that is can usually be handled by one, or at most, two persons. This should free other members of the labour force to take whatever employment is available, if they are so inclined.

Table 4.1 helps to clarify the situation with respect both part-time agricultural and full-time non-agricultural employment. The one sample household in the 6 to 14 rai farm-size group had 5 members in the labour force as compared with an average of 2.8 in the population. Of these 5 members, 4 were engaged in part-time agricultural employment. Moreover, that household was the only one in the population in that farm-size group which had members engaged in part-time agricultural employment. The household had a land holding of 14 rai, and like 9 out of the 10 population households in that particular farm-size group, it was all rented land. It would therefore appear that the tendency to engage in part-time agricultural employment in that 1 household was related to the larger than usual labour force.

Table 4.1 Ban Chung, Households with Land Holdings: Household Distribution of the Mean Numbers of Persons in the Labour Force, of Persons Engaged in Part-time Agricultural Employment, and of Persons Engaged in Full-time Non-agricultural Employment, by Farm-Size Group, for the Population (with the Sample Distribution in Parentheses)

Farm-Size Group	Number of Households	Mean Size of the Labour Force	Mean Number Engaged in Part-time Agricultural Employment	Mean Number Engaged in Full-time Non-agricultural Employment
1	1 --	5.0 --	0.0 --	2.0 --
2 - 5	1 --	3.0 --	2.0 --	0.0 --
6 - 14	10 (1)	2.8 (5.0)	0.4 (4.0)	0.2 (0.0)
15 - 29	27 (4)	2.9 (3.8)	0.0 (0.0)	0.1 (0.8)
30 - 44	18 (4)	3.6 (3.5)	0.0 (0.0)	0.2 (0.3)
45 - 59	5 --	4.4 --	0.0 --	0.2 --
Total	69 (9)	3.2 (3.8)	0.1 (0.4)	0.2 (0.4)

For full-time non-agricultural employment, the same table (4.1) shows a fairly large difference in the mean number of participants in the 15-29 rai farm-size group. The mean number engaged in full-time non-agricultural employment in the population was 0.1, while in the sample it was 0.8. It happened that all 3 of the individuals in the population taking full-time non-agricultural employment were in 2 of the 4 sample households. The two persons in one household were both carpenters. For the other household, no detail was given about the kind of work the person pursued. An additional factor which might be considered for the biases in both part-time agricultural employment and full-time non-agricultural employment is personal initiative.¹

¹ As suggested by Amyot (1974), personal initiative may have been a factor contributing to the wide range of per rai rice production in this village. He had no numerical data to substantiate his suggestion, but he did have the research assistants' field notes with some biographical material, and their verbal descriptions of the personalities of the members of those households which he had already indentified for high, and for low per rai rice production. He found that the household heads of high-yield households were "intelligent, resourceful, hard working, and had the collaboration of likewise endowed cheerful and united family members". By comparison, the unsuccessful farmer was "not to bright, lazy, set in his ways, individualistic, and unsupported by his kin group". The cases of the incidence of the two types of employment being discussed here also suggest that personal characteristics played a real role.

The fact that many of the individuals involved in part-time agricultural employment (4 out of 6) and full-time non-agricultural employment (4 out of 12) were in the sample households strongly suggests that the sample was biased with respect to the personal characteristics of household members, that is, that the households chosen for the sample were characterized by more ability and initiative than was true of the average household in the village. This is the kind of bias which can be expected to result from the input of the village headman.

KHAYAI, Households with Land Holdings

In this chapter, the population and sample for the village in tambon Khayai will once again be split into two groups, consisting of households with land holdings, and households without land holdings. This division facilitates the exploration for possible inter-relationships amongst the variables with significant differences between the population and the sample.

Among the households with land holdings, several quantitative variables had sample biases, as was shown in Chapter III. All of these quantitative variables had χ^2 values that were significant, and some also had significant Z values. The variables showing these biases were the number

of persons in the labour force (χ^2), the number of persons younger than eleven years (χ^2 and Z), the number of persons doing full-time own-account non-farm work (χ^2), the percent of unnecessary labour during the rice planting season (χ^2), the percent of the previous year's rice harvest bartered or sold (χ^2), and the number of persons taking part-time non-agricultural employment (χ^2).

In addition, more sample households hired permanent employees, a higher proportion than in the population paid hired labour in cash and food, and more of them gave 6 to 10 man-days labour exchange.

Most of these variables seem to be related to the size of the labour force. The basis for the labour force bias appears to lie in the fact that although the sample households were drawn from all population labour force sizes except for the smallest (with 1 instance) and the largest (with 7 instances), the number of sample households drawn from each labour force size was in most cases not proportional to the occurrence of that labour force size in the population. (See Table 4.2). The sample contains two households with two labour force members. The other labour force categories represented had one sample household each. This distribution resulted in the significantly larger sample variance already discussed in Chapter III.

In Table 4.2 no relationship per se appeared between the number of

Table 4.2. Khayai, Households with Land Holdings: Household Distribution of the Number of Persons Engaged in Full-time Own-account Non-farm Work, by the Size of the Labour Force, for the Population (with the Sample Distribution in Parentheses).

Size of Labour Force	Number of Households						Total	%households with some members involved	%households with all members involved
	with Number of Persons Engaged in Full-time Own-account Non-farm Work								
	0	1	2	3	4	5			
1	2 (-)	---	---	---	---	---	2 (-)	0 (-)	0 (-)
2	11 (-)	2 (-)	8 (2)	---	---	---	21 (2)	48 (100)	38 (100)
3	7 (-)	---	3 (-)	6 (1)	---	---	16 (1)	56 (100)	38 (100)
4	6 (1)	---	---	---	2 (-)	---	8 (1)	25 (0)	25 (0)
5	3 (-)	---	---	---	1 (-)	2 (1)	6 (1)	50 (100)	33 (100)
6	2 (1)	---	1 (-)	---	---	---	3 (1)	33 (0)	0 (0)
7	1 (-)	---	---	---	---	---	1 (-)	100 (-)	0 (-)
Total	32 (2)	2 (-)	12 (2)	6 (1)	3 (-)	2 (1)	57 (6)	44 (67)	32 (67)

persons in the labour force and the number doing full-time own-account non-farm work. However, an interesting trend did appear: households either had no labour force members engaged in this type of work, or else all or almost all labour force members were involved. In 18 households, all labour force members were doing full-time own-account non-farm work, and in 6 more, all but one member were involved. The only exception to the above all-or-nothing trend was one household with 6 labour force members, only 2 of whom were engaged in full-time own-account non-farm work. The table also suggests that the significant value obtained for the variance test for the number of persons doing full-time own-account non-farm work was the result of this all-or-nothing trend, combined with the fact that 4 of the sample households (67%) fell in the "all" category, as compared with 32% in the population. (44% of population households had some, if not all, labour force members involved in full-time own-account non-farm work)

Comparing labour force size with the number of children younger than eleven years, again some relationship appears possible. In Table 4.3, (if the categories for 1, 6 and 7 labour force members, which have very low frequencies, are ignored) the mean number of children younger than 11 years per household steadily decreases from 2 labour force members to 5. The percent of households with children also shows an overall decrease from 2 labour force members to 6. Looking at the body of the table, it appears that the households which have the

Table 4.3 Khayai, Households with Land Holdings: Household Distribution of the Number of Children Younger than Eleven Years, by the Size of the Labour Force, for the Population (with the Sample Distribution in Parentheses).

Size of Labour Force	Number of Households						Total	Percent of Households with at Least 1 Child	Percent of Households with More than 1 Child	Mean Number of Children per Household
	With Number of Children Younger than Eleven Years									
	0	1	2	3	4	5				
1	2 (-)	-	-	-	-	-	2 (-)	0 (-)	0 (-)	0.0 (-)
2	7 (-)	6 (-)	5 (-)	2 (2)	-	1 (-)	21 (2)	67 (100)	38 (100)	1.3 (3.0)
3	4 (-)	5 (-)	6 (-)	-	1 (1)	-	16 (1)	75 (100)	44 (100)	1.3 (4.0)
4	3 (1)	2 (-)	2 (-)	1 (-)	-	-	8 (1)	63 (0)	38 (0)	1.1 (0.0)
5	3 (-)	2 (-)	1 (1)	-	-	-	6 (1)	50 (100)	17 (100)	0.7 (2.0)
6	1 (-)	1 (-)	-	1 (1)	-	-	3 (1)	67 (100)	33 (100)	1.3 (3.0)
7	-	-	1 (-)	-	-	-	1 (-)	100 (-)	100 (-)	2.0 (-)
Total	20(1)	16(-)	15 (1)	4 (3)	1 (1)	1(-)	57 (6)	65 (83)	37 (83)	1.2 (2.5)

most children have 2 to 4 labour force members. As the number in the labour force increases, the number younger than 11 years decreases, or, as happens in fact, as the children grow up to be more than eleven years old, the number of labour force members increases. However, this trend in the population does not appear to be in any way responsible for the sample distribution of children younger than eleven years. In three labour force categories, namely 3, 5 and 6, the household chosen for the sample was the one in the population with the most children. In one other labour force category (2), the sample household was one of three population households with 3 or more children (out of a total of 21 population households in the category). Only in one labour force category (4) was the sample household one with no children. Thus the bias in the sample concerning the number of children younger than eleven years can be considered independent from the bias which existed in the size of the labour force.

Investigation of a possible relationship between labour force size and participation in part-time non-agricultural employment revealed the fact that there were only 5 population members involved, and 3 of them were in one of the sample households.²

² That household had 4 persons in the labour force, and no children younger than eleven years. One of the labour force members worked only on the 10 rai of land which the household share-cropped. The other 3 had non-agricultural main occupations, and were engaged in farming only as a subsidiary occupation. For these three, part-time non-agricultural employment consisted of brick-making. Two of them

A situation similar to the one described gave rise to the sample bias towards more permanent employees. There was only one household in the population which hired permanent employees, and it fell in the sample. The need for care in interpreting the labour utilization data for this household is accentuated by the fact that the permanent employees were not included as labour force members in the Socio-Economic Profile Schedule. Hopefully they were in the labour utilization data.³

The sample biases in the distribution for the percent of the rice harvest bartered or sold for the year preceding the fieldwork appears to be mainly a result of the fact that there were 2 households in the population who sold 100 % of their rice harvest and both of these households fell in the sample. Excluding these 2 households the population and sample distributions become quite similar.

were employed in the village, and one in the town of Ayutthaya.

One of the other two population members not in the sample engaging in part-time non-agricultural employment was a carpenter. The other was a village headman (civil servant). This last individual was also a land renter, and he hired other people to make bricks for him. He may very well have been the employer of the two sample members discussed above who were working in the village at brick-making.

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This household had two labour force members, and hired an additional 3 people, (a woman and her two children), to make bricks 12 months a year. This second family was paid 200 baht a month for their labour, and were provided with a house in the house-ground of their employer.

Investigation of the possibility of relationships between the number of man-days of labour exchange given, the size of the labour force, and farm size, showed that no farm with fewer than 6 rai or more than 44 rai gave labour exchange. All givers of labour exchange held between 6 and 44 rai. No other relationships appeared within the 6 to 44 rai range. There was no relationship between the giving of labour exchange and the size of the labour force. The tendency for proportionately more of the sample households to give labour may have reflected the prerequisite for the selection of sample households mentioned in Chapter II, that of co-operation. We must remember that the proportions receiving labour exchange, and the distributions of the number of man-days received were no different for the sample and the population. Regarding the biases which occurred in the distribution of man-days of labour exchange given, it would seem that they were mainly the result of chance.

The final variable to be discussed for the land-holding households in Khayai is the percent of unnecessary labour during the rice planting season. Cross-tabulations by size of the labour force and farm-size group indicated that there was a relationship with labour force size but not with farm size. Table 4.4 shows that for the population the mean percent of unnecessary labour during the rice planting season increased fairly steadily from 0% at 1 labour force member to 60% for 7 labour force members. In the sample, the households with the high percentages

Table 4.4 Khayai, Households with Land Holdings: Percent of Unnecessary Labour During the Rice Planting Season, by Size of the Labour Force, for the Population (with the Sample Data in Parentheses).

Size of Labour Force	Number of Households	Percent Unnecessary Labour During the Rice Planting Season		
		Number of Households - not Applicable	Number of Households - Applicable	Mean % for Households - Applicable
1	2 (-)	-	2 (-)	0.0 (-)
2	21 (2)	2 (-)	19 (2)	2.6 (0.0)
3	16 (1)	-	16 (1)	12.6 (0.0)
4	8 (1)	-	18 (1)	31.3 (75.0)
5	6 (1)	-	6 (1)	36.7 (60.0)
6	3 (1)	1 (-)	2 (1)	55.0 (50.0)
7	1 (-)	-	1 (-)	60.0 (-)
Total	57 (6)	3 (-)	54 (6)	15.6 (22.5)

of unnecessary labour during the rice planting season were those with 4 to 6 labour force members. It would appear that the bias resulting in a higher sample variance for the size of the labour force was partly responsible for the bias in the percent of unnecessary labour during the rice planting season. However, that bias does not explain why the sample households covered the whole population range for the distribution of the variable, which was from 0 % to 75 %. This indicates that other variables were also operating to produce the bias. As was stated above, it does not appear to have been farm size. Nor was it the use of tractors.

In summary, although it appeared possible from a study of the list of variables with sample biases that these variables were related to the bias in labour force size, this only proved to be true for two variables, the number of children younger than eleven years, and the percent unnecessary labour during the rice planting season. In addition, there was some relationship between labour exchange given and farm-size, but none between percent unnecessary labour during the rice planting season, and farm-size.

The other variables all seemed unrelated to labour force size and farm-size, and to each other. The biases seemed to have arisen by chance.

KHAYAI, Households without Land Holdings

The sample for households without land in Khayai was biased, as we saw in Chapter III, on several quantitative variables. Specifically they were the number of persons in the labour force, the number of persons engaged only in non-agriculture, the number of persons doing full-time own-account non-farm work, the number of children of household head, the number of children younger than eleven years, and the number of persons eleven years and older engaged in full-time study or training. In addition, there were a few descriptive variables with significant differences: the proportion of household heads with "self-employed" as employment status in main occupation, the proportion of household heads with "trading" as industry of subsidiary occupation, the proportion of households hiring casual labour, and the proportion of households not giving an answer for the origin of the majority of casual labour. All but the first of these descriptive variables, (the proportion of household heads with "self-employed" as employment status in main occupation) were the result of including in the sample the only instance in the population, and need not be too closely considered in the present discussion.

The sample mean for the number of persons in the labour force was higher than the population mean ($P < .10$). This appears to be the result of choosing sample households with labour forces of 3, 4, and 5 members, giving a mean and median labour force size of 4.0, while

the mean size for the population was 2.7 (and the median was 2.0). Several inter-relationships between labour force size and other biased variables will be presented in the discussion following.

The number of labour force members engaged only in non-agriculture showed slightly more sample bias than the size of the labour force. Cross-tabulating these two variables, however, indicated that most of the bias in the number of persons engaged only in non-agriculture actually arose from the bias in the size of the labour force already discussed above. From Table 4.5 it can be seen that the trend for engaging only in non-agricultural work was an all-or-nothing one; either all household members were engaged only in non-agriculture, or none were. There was only one exception to this trend, a household in which 1 of the 4 labour force members was engaged in agricultural work as well as non-agricultural work.

Cross-tabulating the size of the labour force by employment status of household head in main occupation (Table 4.6) showed an apparent relationship in that while about the same number of households with 1 to 3 labour force members fell into each of the two major categories, "employee" and "self-employed" most of the households with 4 or more labour force members were these in which the household head was self-employed in his main occupation. A t-test on the mean size of

Table 4.5 Khayai, Households without Land Holdings: Household Distribution of the Number of Persons Doing Only Non-agricultural Work, by Size of the Labour Force, for the Population (with the Population Distribution in Parentheses).

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Size of Labour Force	Number of Households								Total	% of Households with Some Members Doing Only Non-agricultural Work	
	With Number of Persons Doing Only Non-agricultural Work										
	0	1	2	3	4	5	6	7			
0	1 (-)	-	-	-	-	-	-	-	1 (-)	0 (-)	
1	-	10 (-)	-	-	-	-	-	-	10 (-)	100 (-)	
2	3 (-)	-	28 (1)	-	-	-	-	-	31 (1)	90 (100)	
3	2 (-)	-	-	14 (1)	-	-	-	-	16 (1)	88 (100)	
4	1 (-)	-	-	1 (-)	5 (2)	-	-	-	7 (2)	86 (100)	
5	-	-	-	-	-	3 (-)	-	-	3 (-)	100 (-)	
6	1 (-)	-	-	-	-	-	3 (-)	-	4 (-)	75 (-)	
7	-	-	-	-	-	-	-	1 (-)	1 (-)	100 (-)	
Total	8 (-)	10 (-)	28 (1)	15 (1)	5 (2)	3 (-)	3 (-)	1 (-)	73 (4)	89 (100)	

Table 4.6 Khayai, Households without Land Holdings: Household Distribution of the Status of Household Heads in Main Occupation, by the Size of the Labour Force, for the Population (with the Sample Distribution in Parentheses).

Size of Labour Force	Number of Households			
	whose Household Head had Employment Status in Main Occupation			Total
	Employee	Self-employed	No Main Occupation	
0	-	-	1 (-)	1 (-)
1	5 (-)	5 (-)	-	10 (-)
2	14 (-)	16 (-)	1 (-)	31 (-)
3	8 (-)	7 (1)	1 (-)	16 (1)
4	1 (-)	6 (2)	-	7 (2)
5	-	3 (1)	-	3 (1)
6	1 (-)	3 (-)	-	4 (-)
7	-	1 (-)	-	1 (-)
Total (N)	29 (-)	41 (4)	3 (-)	73 (4)
ΣX	67 (-)	122 (16)	5 (-)	
\bar{X}	2.31 (-)	2.98 (4.00)	1.67 (-)	
$\Sigma (X)^2$	4,489 (-)	14,885 (256)	25 (-)	
ΣX^2	185 (-)	450 (66)	13 (-)	
S^2	1.0206 (-)	1.4563 (0.5)	1.5556 (-)	

t for employee vs. self-employed = -2.264 at df = 39, 28.

$t_{.05} = 2.035$ (df = 40, 28)

Therefore, the difference was significant at $P < .05$.

the labour force for these two groups (household head "employee" or "self-employed" in main occupation) showed that the trend towards a larger labour force in households whose head was self-employed was significant at $P < .05$. (No significant differences occurred in labour force sizes between the "no occupation" category and the other two categories.) Thus, households whose heads were self-employed in main occupation, had, on the average, more labour force members. Where the cause-effect relationship lies here is an open question, but the writer would like to suggest, in line with Hanks (1972), that a household head who is self-employed is probably in a better position to hold working members to his household, as he can more likely provide them with employment. Household heads who themselves are employed by someone also are less likely to be able to employ their household members, or to provide them with the other kinds of benefits which would tend to keep them in the household.

Table 4.7 comparing involvement in full-time own-account non-farm work with the size of the labour force, shows much the same trend as Table 4.5 (for involvement only in non-agricultural work).

Either all labour force members (or almost all members) in each household were engaged in full-time own-account non-farm work, or none were. However, whereas the members of 89% of households were engaged only in non-agricultural work, only 42% of households had members doing full-time own-account non-farm work. The question of the deciding factor for this participation in full-time own-account non-farm work is partly settled by comparing

Table 4.7 Khayai, Households without Land Holdings: Household Distribution of the Number of Persons Doing Full-time Own-account Non-farm Work, by the Size of the Labour Force, for the Population (with the Sample Distribution in Parentheses).

Size of Labour Force	Number of Households								Total	% of Households with Members Doing Full-time Own-account Non-farm Work	
	with Number of Persons Doing Full-time Own-account Non-farm Work										
	0	1	2	3	4	5	6	7			
0	1(-)	-	-	-	-	-	-	-	1 (-)	0	(-)
1	7(-)	3 (-)	-	-	-	-	-	-	10 (-)	30	(-)
2	19(-)	6 (-)	6(-)	-	-	-	-	-	31 (-)	39	(-)
3	11(1)	-	1(-)	4 (-)	-	-	-	-	16 (1)	31	(0)
4	2(-)	-	-	-	5 (2)	-	-	-	7 (2)	71	(100)
5	2(-)	-	-	-	-	1 (1)	-	-	3 (1)	33	(100)
6	-	-	-	-	-	-	4 (-)	-	4 (-)	100	(-)
7	-	-	-	-	-	-	-	1 (-)	1 (-)	100	(-)
Total	42(1)	9 (-)	7 (-)	4 (-)	5 (2)	1 (1)	4 (-)	1 (-)	73 (4)	42	(75)

this variable with the industry of household head in main occupation. Table 4.8 shows that only 10% of households whose head was an employee in his main occupation had members involved in full-time own-account non-farm work, whereas 68 % of those whose head was self-employed in main occupation had members involved. So not only did the households of self-employed household heads have more labour force members, they were also more likely to be involved in full-time own-account non-farm work.

Cross-tabulating industry of subsidiary occupation of household head with his employment status in main occupation was not particularly helpful in explaining the biases with respect to either of these two variables. It is true that there was a slight difference in the percent of household heads with subsidiary occupations for the different categories of status in main occupation. Of those households whose heads had "employee" as employment status in main occupation, 21 % had subsidiary occupations, while 31 % of those with "self-employed" as household head's status in main occupation had subsidiary occupations. However, this does not explain why the only population household head with "trading" as industry of subsidiary occupation should be included in the sample, and this was, after all, the sample bias which arose.

When industry of subsidiary occupation of household head was compared

Table 4.8 Khayai, Households without Land Holdings: Household Distribution of the Number of Persons Doing Full-time Own-Account Non-Farm Work, by Employment Status of Household Head in Main Occupation, for the Population (with the Sample Distribution in Parentheses).

Employment Status of Household Head in Main Occupation	Number of Households								% of Households with Members Doing Full-time Own-account Non-Farm Work	
	with Number of Persons Doing Full-time Own-account Non-farm Work							Total		
	0	1	2	3	4	5	6			7
No Occupation (retired, management function only)	3 (-)	-	-	-	-	-	-	-	3 (-)	0 (-)
Employee	26 (-)	2 (-)	-	-	-	-	1 (-)	-	29 (-)	10 (-)
Self-employed	13 (1)	7 (-)	7 (-)	4 (-)	5 (2)	1 (1)	3 (-)	1 (-)	41 (4)	68 (75)
Total	42 (1)	9 (-)	7 (-)	4 (-)	5 (2)	1 (1)	4 (-)	1 (-)	73 (4)	42 (75)

with the size of the labour force, again no clear picture emerged. While 26% of household heads had subsidiary occupations, these were distributed over the whole range of labour force sizes, and there were few enough with any one industry of subsidiary occupation that no trend along that line could be seen. The bias on the subsidiary occupation of household head does not appear to be related to the other variables with biases, and may have been largely the result of chance.

The final set of variables to be considered is the set containing the number of children younger than eleven years, the number eleven years or older engaged in full-time study or training, and the number of children of household head.

The last of these three, the number of children of household head, presents a problem for the present discussion, as it cannot really be compared with other variables. Most of the variables in the Socio-Economic Profile Schedule were concerned with the actual situation in the households during the year period preceding the enumeration. The number of children of household head reflects not so much the situation in the household at that time as an historical fact, for it includes all living children of household head whether at home or away from home. It is likely that this variable has had a certain contribution to labour force sizes.

Determining any such relationship from the coded data is unfortunately impossible. It is possible to determine the number of children of household head who were at home, but it is not possible to decide how they were distributed among the labour force members, the number of children younger than eleven, and the number of children eleven or older studying full-time, as all three categories may contain persons other children of household head. The fact that cross-tabulating this variable with the size of the labour force did not show any relationship does not mean such a relationship does not exist, but simply that the data are not sufficiently refined to permit an adequate exploration. (Note that these two variables are not mutually exclusive. They overlap; to what extent is not known.)

Tables 4.9, 4.10, and 4.11 indicate that the number of children younger than eleven years and the number eleven or older studying full-time (as well as the total of the two) were all related to labour force size. The households with the most children younger than eleven years (Table 4.9) were those with 2 and 3 labour force members. The distribution sloped downward from this peak for fewer and more labour force members, and it sloped faster, of course, for fewer members as there were only two categories, "1" and "0". The mean number of children younger than eleven reflected this trend with a peak at 2 and 3. The almost inverse

Table 4.9 Khayai, Households without Land Holdings: Household Distribution of the Number of Children Younger than Eleven Years, by the Size of the Labour Force, for the Population (with the Sample Distribution in Parentheses).

Size of Labour Force	Number of Households					Total	% of Households with Children Younger than Eleven Years	Mean Number of Children Younger than Eleven Years Per Household
	with Number of Children Younger than Eleven Years							
	0	1	2	3	4			
0	1 (-)	-	-	-	-	1 (-)	0 (-)	0.0 (-)
1	7 (-)	2 (-)	1 (-)	-	-	10 (-)	30 (-)	0.4 (-)
2	8 (-)	6 (-)	7 (-)	9 (-)	1 (-)	31 (-)	74 (-)	1.6 (-)
3	7 (-)	3 (-)	2 (-)	3 (-)	1 (1)	16 (1)	56 (100)	1.3 (4.0)
4	3 (1)	3 (-)	-	1 (1)	-	7 (2)	57 (50)	0.9 (1.5)
5	1 (1)	1 (-)	1 (1)	-	-	3 (1)	67 (0)	1.0 (0.0)
6	2 (-)	2 (-)	-	-	-	4 (-)	50 (-)	0.5 (-)
7	1 (-)	-	-	-	-	1 (-)	0 (-)	0.0 (-)
Total	30 (2)	17 (-)	11 (-)	13 (1)	2 (1)	73 (4)	59 (50)	1.2 (1.8)

Table 4.10 Khayai, Households without Land Holdings: Household Distribution of the Number of Children Eleven Years or Older Engaged in Full-time Study or Training, by the Size of the Labour Force, for the Population (with the Sample Distribution in Parentheses).

Size of Labour Force	Number of Households					Total	Percent of Households with Children Studying	Mean Number of Children Studying Per Household
	with Number of Children Eleven or Older Engaged in Full-time Study or Training							
	0	1	2	3	4			
0	1 (-)	-	-	-	-	1 (-)	0 (-)	0.0 (-)
1	9 (-)	1 (-)	-	-	-	10 (-)	10 (-)	0.1 (-)
2	15 (-)	7 (-)	4 (-)	4 (-)	1 (-)	31 (-)	52 (-)	1.0 (-)
3	8 (-)	4 (-)	2 (-)	1 (-)	1 (1)	16 (1)	50 (100)	0.9 (4.0)
4	5 (1)	2 (1)	-	-	-	7 (2)	29 (50)	0.3 (0.5)
5	1 (-)	1 (1)	1 (-)	-	-	3 (1)	67 (100)	1.0 (1.0)
6	2 (-)	1 (-)	1 (-)	-	-	4 (-)	50 (-)	0.8 (-)
7	-	1 (-)	-	-	-	1 (-)	100 (-)	1.0 (-)
Total	41 (1)	17 (2)	8 (-)	5 (-)	2 (1)	73 (4)	44 (75)	0.8 (1.5)

Table 4.11 Khayai, Households without Land Holdings: Household Distribution of the Total Number of Children Younger than Eleven Years, and Eleven or Older Engaged in Full-time Study or Training, by Size of the Labour Force, for the Population (with the Sample Distribution in Parentheses).

Size of Labour Force	Number of Households							Total	Percent of Households with Children	Mean Number of Children Per Household
	with Total Number of Children									
	0	1	2	3	4	5	6			
0	1 (-)	-	-	-	-	-	-	1 (-)	0 (-)	0.0 (-)
1	7 (-)	1 (-)	2 (-)	-	-	-	-	10 (-)	30 (-)	0.5 (-)
2	7 (-)	5 (-)	6 (-)	8 (-)	3 (-)	1 (-)	1 (-)	31 (-)	78 (-)	2.1 (-)
3	7 (-)	2 (-)	2 (-)	2 (-)	2 (1)	1 (-)	-	16 (1)	56 (100)	1.6 (4.0)
4	3 (1)	2 (-)	1 (-)	-	1 (1)	-	-	7 (2)	57 (50)	1.1 (2.0)
5	-	2 (1)	1 (-)	-	-	-	-	3 (1)	100 (100)	1.3 (1.0)
6	2 (-)	-	1 (-)	1 (-)	-	-	-	4 (-)	50 (-)	1.3 (-)
7	-	1 (-)	-	-	-	-	-	1 (-)	100 (-)	1.0 (-)
Total	27 (1)	13 (1)	13 (-)	11 (-)	6 (2)	2 (-)	1 (-)	73 (4)	63 (75)	1.5 (2.3)



relationship between the number of children younger than eleven and the number in the labour force for labour force sizes larger than 2 is to be expected as the result of the aging of the nuclear family. Initially, in a nuclear family, the labour force consists of the husband and wife, and the children who are too young to work. As time passes, the children grow up, and the number of children old enough to work increases.

The distribution for the number of children eleven or older engaged in full-time study or training (Table 4.10) also shows a peak at 2 labour force members, but it then slopes upward at 5, 6 and 7 labour force members to reach its peak mean at 7. This trend towards more people studying in households with large labour forces can hardly be considered surprising. Often it is only once the labour force has become larger, or the ratio of dependents (consisting mainly of children younger than eleven and children studying) to labour force members has been reduced, that children who are old enough to work are permitted to go on studying. The peak at 2 labour force members is more surprising. Of course, it may be related to the reason already discussed above with relation to the number of children younger than eleven, for a child of 11 or 12 may still be too small to be a productive labour force member, and may for that reason be allowed to continue studying.



Table 4.11 showing the distribution of the total number of dependent children, (consisting of children younger than eleven and children studying) by labour force only tends to confirm the fact of the peak at 2 labour force members. On the low end, the distribution falls off quickly, and at the high end, more slowly (down to an average of 1 person per household).

These data on the number of children younger than eleven and the number eleven or older studying present a problem not apparent before. It is already known that the sample labour force was biased on the high side (consisting of 3, 4 and 5 labour force members per household). The trend discussed above for the number of children younger than eleven to decrease with an increase in labour force size suggests that the sample, if biased, should be biased towards fewer children younger than eleven as compared with the population. Also, for the number of children eleven or older studying, the mean per labour force size was lowest for four labour force members, the size from which half of the sample was drawn. Again, a bias on this variable, if any, should be toward a smaller mean. However, in the case of both variables, the sample means were higher. The households chosen for the sample were those with higher than usual numbers of children in both categories. Cross-tabulating both variables with the employment status of household head in main occupation showed

no relationship. Thus it appears that other unidentified variables were operating.

In summary, some of the variables with biases in the sample of households without land holdings in Khayai proved to be inter-related in the population. The number of labour force members engaged only in non-agricultural work, the number doing full-time own-account non-farm work, the number of children younger than eleven years, and the number of children eleven years or older engaged in full-time study or training, were all related to the size of the labour force. As well, the size of the labour force itself, and the number doing full-time own-account non-farm work, were related to the employment status of household head in main occupation. The number of children younger than eleven, and eleven or older engaged in full-time study or training were not related to employment status of household head in main occupation.

THAP NAM

In Chapter III it already became apparent that the sample for Thap Nam was biased on many variables, but that the 9 land-holding households in the sample were more representative of the land-holding population than were the 10 sample households of the whole village. Consequently, it seems wise in the case of Thap Nam to limit the investigation of interrelationships among the biased variables to land-holding households, and not to try generalizing from the sample to that portion of village households without land holdings.

The quantitative variables for which there were sample biases for land-holding households were the number of persons in the labour force, the number of children eleven years or older engaged in full-time study or training, the number of labour force members engaged only in agricultural work, the number of persons taking full-time non-agricultural employment, and the size of the operational holding. For all of these variables, the sample means were significantly larger than those for the population, but the differences in variances were not significant. (For all but one of these variables (labour force, $p < .05$), the level of significance of the difference between means was only $< .10$.)

Cross-tabulating the size of the labour force with farm-size group showed no clear trend. The distribution of households was scattered, and the mean labour force sizes were quite similar for all farm-size groups.

The number of persons engaged only in agriculture was cross-tabulated with both size of labour force, and farm-size group, and in both cases, appeared to be related. More of the households in the larger farm sizes had persons engaged only in agriculture, and the mean number of persons per household thus engaged increased from the 6 - 14 rai size group up to the larger farm sizes. (Table 4.12).

In relation to the size of the labour force, the mean numbers of persons engaged only in agriculture for each of the labour force sizes showed a steady increase from 2 up to 7 labour force members

Table 4.12 Thap Nam, Households with Land Holdings: Household Distribution of the Number of Persons Engaged Only in Agriculture, by Farm-Size Group, for the Population (with the Sample Distribution in Parentheses).

Farm Size Group (rai)	Number of Households								% of House- holds with Some Members Only in Agriculture	Mean Number of Persons Only in Agriculture Per House- hold
	with Number of Persons Engaged Only in Agriculture							Total		
	0	1	2	3	4	5	6			
1	2 (-)	-	-	-	-	-	-	2 (-)	0 (-)	0.0 (-)
2 - 5	2 (-)	-	-	-	-	-	-	2 (-)	0 (-)	0.0 (-)
6 - 14	3 (-)	2 (-)	1 (-)	-	-	-	-	6 (-)	50 (-)	0.7 (-)
15 - 29	3 (-)	2 (-)	6 (1)	1 (-)	-	1 (1)	-	13 (2)	77 (100)	1.7 (3.5)
30 - 44	-	3 (-)	1 (1)	-	1 (-)	2 (1)	-	7 (2)	100 (100)	2.7 (3.5)
45 - 59	-	1 (1)	1 (-)	1 (-)	1 (1)	1 (-)	1 (-)	6 (2)	83 (100)	3.5 (2.5)
60 - 139	1 (1)	1 (1)	4 (-)	2 (-)	1 (1)	-	-	9 (3)	89 (67)	2.1 (1.7)
Total	12 (1)	8 (2)	12 (2)	5 (-)	3 (2)	4 (2)	1 (-)	45 (9)	73 (89)	1.9 (2.7)

(Table 4.13). However, the number engaged only in agriculture is a sub-category of the labour force. On closer inspection, when the percents of all labour force members engaged only in agriculture for the different labour force sizes were considered, no trend was apparent. The percents ranged from 39 % to 82 % with the percent for the whole land-holding population being 57 %.

The number of children eleven years or older studying full-time was cross-tabulated with both the size of the labour force and farm-size group. The cross-tabulation by farm-size group yielded no information. However, the former cross-tabulation showed a tendency for the number of households with children eleven or older engaged in full-time study or training to increase with an increase in the size of the labour force (Table 4.14). Of course, the mean number of children studying per household also increased.

The number of persons taking full-time non-agricultural employment showed no relationship to farm-size group when cross-tabulated with that variable, but did show a relationship with the size of the labour force (Table 4.15). The percent of households with members taking full-time non-agricultural employment increased with an increased labour force, as did the mean number of persons per household taking full-time non-agricultural employment. As well, the percent of all labour force members taking such employment showed an increase with an increase in labour force size. The only exception to all three trends was the household with only one labour force member.

Table 4.13 Thap Nam, Households with Land Holdings: Household Distribution of the Number of Persons Engaged Only in Agriculture, by the Size of the Labour Force, for the Population (with the Sample Distribution in Parentheses).

Size of Labour Force	Number of Households								% of Households Having Members Engaged Only in Agriculture	Mean Number of Persons Only in Agriculture per Household
	with Number Engaged Only in Agriculture							Total		
	0	1	2	3	4	5	6			
1	1 (-)	-	-	-	-	-	-	1 (-)	0 (-)	0.0 (-)
2	1 (-)	3 (-)	10 (2)	-	-	-	-	14 (2)	93 (100)	1.6 (2.0)
3	4 (-)	4 (1)	2 (-)	2 (-)	-	-	-	12 (1)	67 (100)	1.2 (1.0)
4	4 (1)	2 (1)	-	2 (-)	2 (1)	-	-	10 (3)	60 (67)	1.6 (1.7)
5	1 (-)	-	-	-	-	3 (1)	-	4 (1)	75 (100)	3.8 (5.0)
6	-	-	1 (-)	-	1 (1)	-	1 (-)	3 (1)	100 (100)	4.0 (4.0)
7	-	-	-	-	-	1 (1)	-	1 (1)	100 (100)	5.0 (5.0)
Total	11 (1)	9 (2)	13 (2)	4 (-)	3 (2)	4 (2)	1 (-)	45 (9)	76 (89)	1.8 (2.6)

Table 4.14. Thap Nam, Land-Holding Households: Household Distribution of the Number of Children Eleven or Older Engaged in Full-time Study or Training, by Labour Force Size, for the Population (with the Sample Distribution in Parentheses)

Labour Force Size	Number of Households			Total	% of Households with Children Studying	% of Households with more than 1 Child Studying	Mean Number of Children Studying
	with Number Eleven or Older Studying						
	0	1	2				
1	1	-	-	1	0	0	0.00
2	8 (2)	5	1	14 (2)	43 (0)	7 (0)	0.50 (0.00)
3	8	4 (1)	-	12 (1)	33 (100)	0 (0)	0.33 (1.00)
4	5	4 (2)	1 (1)	10 (3)	50 (100)	10 (33)	0.60 (1.33)
5	3 (1)	1	-	4 (1)	25 (0)	0 (0)	0.25 (0.00)
6	-	2	1 (1)	3 (1)	100 (100)	33 (100)	1.33 (2.00)
7	-	1 (1)	-	1 (1)	100 (100)	0 (0)	1.00 (1.00)
Total	25 (3)	17 (4)	3 (2)	45 (9)	44 (67)	7 (22)	0.51 (0.90)

Table 4.15 Thap Nam, Households with Land Holdings: Household Distribution of the Number of Persons Taking Full-time Non-agricultural Employment, by the Size of the Labour Force, for the Population (with the Sample Distribution in Parentheses).

Size of Labour Force	Number of Households					Total	% of House- holds with Members Taking Such Employment	Mean Number of Persons Per Household Taking Such Employment	% of Labour Force Taking Such Employment
	with Number of Persons Taking Full-time Non-Agricultural Employment								
	0	1	2	3	4				
1	-	1 (-)	-	-	-	1 (-)	100 (-)	1.0 (-)	100 (-)
2	13 (2)	-	1 (-)	-	-	14 (2)	7 (0)	0.1 (0.0)	7 (0)
3	9 (1)	2 (-)	1 (-)	-	-	12 (1)	25 (0)	0.7 (0.0)	11 (0)
4	7 (1)	1 (-)	1 (1)	1 (1)	-	10 (3)	30 (67)	0.6 (1.7)	15 (42)
5	2 (-)	1 (1)	-	1 (-)	-	4 (1)	50 (100)	1.0 (1.0)	20 (20)
6	1 (-)	-	1 (1)	-	1 (-)	3 (1)	67 (100)	2.0 (2.0)	33 (33)
7	-	-	1 (1)	-	-	1 (1)	100 (100)	2.0 (2.0)	29 (29)
Total	32 (4)	5 (1)	5 (3)	2 (1)	1 (-)	45 (9)	29 (56)	0.6 (1.1)	17 (27)

In summary, the data for Thap Nam showed no relationship between the size of the labour force and farm-size groups, but the other variables with sample biases were related to one or the other of these two variables. The number engaged only in agriculture was related to farm size. The other two variables, the number of children eleven years or older engaged in full-time study or training, and the number of persons taking full-time non-agricultural employment, were related to the size of the labour force.

ON TAI

Only two quantitative variables showed sample biases, the number of persons taking employment in the same region (northern) but outside the same or a neighbouring changwat, and the number of persons taking employment in another region. As the discussion in Chapter III indicated, the causes of these biases, if not simple chance, cannot be identified from the data available.

There were also biases on the number of no answers on a number of quantitative variables, (the percent unnecessary labour at three different times of the year, and three variables related to rice production, the average rice yield per rai over the five preceding years, the total rice production the year preceding the fieldwork, and the percent of the preceding year's rice production bartered or sold). The majority of households that did not give answers to one of these variables did not to any of them. In fact, 26 % of all households failed to give answers to any of them, and a few additional households failed to answer one or two. (The percent of no answers for these variables ranged from 27 % to 32 %.)