

EMPLOYMENT IN THE FISHING INDUSTRY: SOME PRELIMINARY FINDINGS ON FISHERMEN'S MOBILITY

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I. EMPLOYMENT AND FISHERIES DEVELOPMENT

PRIOR TO 1965, employment in the fishing industry was growing at the relatively steady rate of around 5 per cent per annum. However, this steady rate of growth took a dramatic turn in the year 1965 and from that year onwards, as seen in Table I below, employment fluctuated considerably from one year to another. Several factors brought about these changes.

The purse seine and the drift net ranked as the main fishing gear in the industry before 1965. The labor absorption capacities of each of these two types of fishing gear can vary widely depending upon the size of the boats used and the ethnic group operating these gear. Since the sizes of the boats are relatively uniform—about 80 per cent of the purse seiners are around thirty tons gross tonnage and above and approximately 90 per cent of the boats operating drift nets are less than ten tons gross tonnage—the main factor determining the number of crew on board is the ethnic origin and traditional practices of the operators. This is particularly true in the case of purse seiners. On the west coast, a purse seiner can employ as few as ten fishermen if it is operated by a Chinese crew or as many as twenty-two if operated by Malay crewmen. On the east coast where Malay fishermen predominate, a purse seiner can employ as many as thirty-five. This has its roots in the socio-cultural setup and patterns of remuneration in the industry.

The Malay peasant fishermen are entrenched in the extended family system where it is socially unacceptable to exclude a relative or a friend who is unemployed from the opportunity of sharing in the catch. Since remuneration of these fishermen is by means of a system of profit sharing whereby only the shares of the fishing crew are affected by the numbers employed, while those earned

This is a continuation to the series of papers presenting the findings of a socioeconomic study of fishing families carried out intermittently during the period 1971-76 in the Dindings, one of the main fishing districts in West Malaysia. (The titles of the former papers are listed in the References: Yap [3]-[12], and Tan et al. [1].) The study was not specifically designed to measure mobility. However, the author feels that the data presented are sufficiently stimulating to prompt some reconsiderations to be made of the existing policies to overcome the problem of overfishing and poverty in the fishing industry. It is encouraging to note that many of the proposals in the paper—such as aquaculture and resettlement schemes—have of late been given increasing attention.

by the boat owner is quite independent of the units of labor on board the boat,¹ the extended family system receives little resistance from the employer unless it affects the efficiency of the fishing operation. Thus, it seems that the basis for the whole social problem of underemployment in the fishing industry stems from the large numbers of men recruited into the industry because of the lack of other opportunities. The extended family system has therefore invalidated the natural mechanism under a profit sharing system of demand for larger shares (and hence fewer crewmen) on the one hand, and the need for more effective operation of the fishing gear for a good harvest (which sets the minimum number of crew required) on the other, which if left unhampered would gravitate to a natural equilibrium that provides optimum fishing effort and share per person. Thus, the rapid and steady growth in the employment rate in the industry may have in the first instance been the result of recruitment of these marginal fishermen relatives.

In 1965 the trawl net was adopted by the Malaysian fishing industry. The initial few states to adopt its use were Perak and Kedah on the west coast because they had the capital resources necessary for new investment and the market for their catch. However the trawl was not acceptable to all fishermen. Its use brought about large amount of protests from the traditional inshore fishermen. A middle-of-the-road strategy was adopted to deal with the demands to develop the trawl fisheries and the objective of the government to modernize the industry on one hand and the protestations made against it on the other. It was decided that only large boats above fifty tons gross tonnage would be permitted to trawl because it was hoped that these large boats could not infringe into the coastal waters and hence could not upset the traditional small-scale fisheries. While enthusiasm for the new fishing gear encouraged many to take up trawling, scepticism towards the durability of the earning power of a fishing gear that was relatively untested in the Malaysian waters meant that most were reluctant to invest in new boats. This reluctance was made more acute because:

(i) regulations required the purchase of fifty tons gross tonnage boats and even in 1965 they cost about M\$12,000; and

(ii) fish was a common property resource and, if the advantage of good fishing was to be taken, the switch to trawling must be made immediately.

The only large boats available at that time were those operating purse seines. Hence large number of these switched over to trawling. Boats who failed to qualify to trawl because they were less than fifty tons gross tonnage, raised their deck to gain the marginal advantage.² The outcome of this as could be seen in

¹ This method of remuneration is what the writer has referred to as the fixed price profit sharing system. The owner of the boat buys over the catch from the crew at fixed prices. The crew shares amongst itself the receipts from the sale of the fish. The employer's return is hence not affected by the number of crew that is employed on board his boat. Indeed the employment of the crew is left entirely in the hands of the *hangkong* ("captain") of the boat. See [11].

² Fishermen rarely gauge the size of their boats by gross tonnage. Most of them measure their boats by the length. For a more detail discussion of the cost and construction of fishing boats, see [3].

TABLE I
EMPLOYMENT INDEX IN THE FISHING INDUSTRY, 1961-74

Year	Index	Year	Index
1961	100	1968	115.8
1962	104.5	1969	119.8
1963	111.9	1970	128.4
1964	115.8	1971	128
1965	128.4	1972	130.5
1966	117.7	1973	143.1
1967	117.0	1974	133.3

Source: Based on figures provided in Ministry of Agriculture and Fisheries, *Annual Fisheries Statistics, 1974*, Table I. II.

Table I was a large fall in the employment index of the fishing industry. In 1965, 6,783 fishermen lost their jobs. The reason is obvious. A large trawler requires only a crew of five men to operate, to be specific, a *taikong* ("helmsman"), an engine driver, and three other crewmen. A large purse seiner employs an average crew of seventeen fishermen on the west coast: a *hangkong* ("captain"), two *taikong* ("helmsmen"), two *weebuis* ("fish watchers"), an engine driver, and eleven deckhands. Thus an average size purse seiner on the west coast that converts to trawling will lay off about twelve fishermen.³ The result was mass unemployment because in addition to licenced trawlers there was a very rapid increase in the number of illegal trawlers which had switched from the operation of some previous fishing gear but who were not able to get a licence because they were below fifty tons gross tonnage.

However, instead of controlling the problem of illegal trawling by more intensive policing and maritime control, the approach to the problem was one that could at best be described as a compromise. To aid and pacify the inshore fishermen a subsidy of M\$1.5 million was given to fishermen in 1970. Instead of confining trawling to only large boats, small boats were allowed to trawl and in fact boats below twenty-five tons gross tonnage powered by less than sixty horsepower engines were allowed nearer inshore.⁴ Large catches attracted to the industry many of those purse seine fishermen who had been laid off when the purse seiners took up trawling as well as attracted also non-fishermen. Consequently in 1970 the employment index reached its 1965 level. Among those who took up trawling were many of the unemployed, taxi drivers, shopkeepers, and people from all walks of life who were interested in making a quick profit but did not want to commit themselves to large expenditures. The result was a large proliferation of small fishing boats in the industry and overfishing in the coastal waters.

In retrospect, it could be said that there was no reason for the industry to develop to this pathetic situation. A firm stand to control the number of trawlers in operation by the use of more efficient police boats—only a pitiful number

³ A more detailed analysis of the impact of trawling on the employment status of the industry has been made in [7].

⁴ Fisheries Maritime Regulation, 1967.

of fifteen boats were available for the entire west coast—would have enabled illegal trawling and infringement of coastal waters to be effectively checked. Although it would have meant that many of the fishermen deployed from the purse seiners cannot return to fishing, this is not necessarily a bad thing if positive steps had been taken at the same time to provide them with alternatives such as opportunities of employment in other occupations and with related training, and resettlement schemes so that these fishermen could be moved into inland fish farming or mangrove agriculture activities. Yet instead of a positive approach, the decision then was to give way to the spontaneous growth of the trawl fishing. One reason for this decision might have been the urge to modernize and to promote the growth of an industry which provides such seemingly attractive return. This shortsightedness still prevails; while in the mid 1970s the depletion of fish resources had brought about measures to prevent overfishing by prohibiting trawling, at the same time the Third Malaysia Plan (TMP) provided for M\$70 million as subsidies to the fishing industry. The purpose of the subsidies was to help fishermen to replace or to purchase new boats and engines and to convert to other methods of fishing. Thus fishermen are provided with 80 per cent subsidy on nets up to a maximum amount of M\$1,000 and 33 per cent subsidy on engines with a maximum of M\$2,500. This effort of helping fishermen to buy new boats does not seem compatible with the need to remedy conditions of overfishing as more boats will be added into the industry. Even though trawling may decrease, the number of fishing boats operating other types of fishing gear and the intensity of their fishing effort are increased so that the fine recovery of fish resources may not be possible. Indeed it may amplify the problem of underemployment as, owing to the subsidies, fishermen are retained into the industry. There is, therefore, a clear need to put to better use the resources available to improve the livelihood of the fishermen.

II. MOBILITY

A study conducted in the Dindings, one of the most important fishing district in Peninsular Malaysia, showed overwhelmingly that fishermen prefer to move out of the industry and to take other forms of occupation.⁵ Of the sixty-eight fishermen interviewed, only one (see Table II) indicated that he would like his children—more specifically his male offsprings—to take on fishing as an occupation. The other 98.5 per cent affirmatively asserts no such inclination. This illustrates that the fishermen themselves are disillusioned with fishing and would have preferred to move out of the industry. When these respondents were asked whether they

⁵ Although no intensive study on fishermen's mobility has been made, discussions with fishermen elsewhere indicated the same characteristic. It is also to be noted at this stage that, although it is acknowledged that the household is the more commonly accepted unit of analysis and measurement of mobility and labor force, most of the questions directed to the fishermen in the survey (which was not specifically designed for the purpose of measuring only mobility) were confined to the fishermen's immediate family.

TABLE II
POTENTIAL MOBILITY

Information Obtained from Ones Who Live in:	Total Number Interviewed	Respondents Willing to Change Occupation		Respondents Who Do Not Want Their Children to Be Fishermen	
		Number	%	Number	%
Pangkor	34	33	97.1	33	97.1
Pantai Remis	34	34	100.0	34	100.0
Total number and overall average percentage	68	67	98.5	67	98.5

Source: Survey conducted in 1976 in Pangkor and Pantai Remis.

Note: Pangkor and Pantai Remis are the two main fishing villages comprising the Dindings.

would take on other jobs if they were able, a unanimous positive response was obtained (Table II). However, to avoid any bias due to the possibility that the questioned fishermen might have hoped for some aid to result from the study, several other questions were put forth to obtain supporting evidence on the mobility of fishermen.

The fishermen were asked to furnish details of their places of origin, their previous occupation, the occupation of their parents, their brothers and sisters, and, in the case of those married, the occupation of their children. The results have been compiled into the following tables.

Table III shows the movements of the respondents and their families. A significant proportion of the respondents were not originally from their present place of residence and work. This is particularly so in the case of Pantai Remis where as high as 73.5 per cent of the sample of thirty-four fishermen interviewed had their origins elsewhere. The high percentage of population inflow into Pantai Remis, as indicated by the sample, was because Pantai Remis did not achieve a significant status as a fishing center until the use of the trawl was permitted to small boats. With the development of the use of mini trawlers—small boats equipped with twenty-four horsepower inboard engines operating the trawl net—in the early 1970s, Pantai Remis attracted an influx of fishermen from as far as the east coast. Out of the twenty-five fishermen in Pantai Remis (see the second column of Table III) who had not originated from Pantai Remis, three were from Trengganu on the east coast of Peninsular Malaysia, one from Pulau Langkawi on the northwest, two were from Kelantan also on the east coast, and one from Kuala Kangsar. However, except for these seven, all the other eighteen were from the immediate vicinity of Pantai Remis itself, that is from within the district of the Dindings. Thus geographical mobility in terms of movements made exists but the degree of mobility—if measured by the distance transversed—is generally low. Most of the movements were inspired by changed fishing location or by changed employ. In Pangkor although 47 per cent of the total number of respondents interviewed were not from Pangkor where they now reside, most of them were again from the immediate vicinity of

Pangkor. Only two originated outside the Dindings. One was from Kuantan and the other from Penang.

Thus, in summary, fishermen are geographically mobile with 78 per cent of the mobile respondents being intra-district movers and only 22 per cent inter-district/state movers. Also, of this 22 per cent, the larger proportion of the inter-state or more "mobile" movers were located in Pantai Remis. Movement into Pangkor was comparatively less because Pangkor did not develop into a trawler center in the manner exemplified by Pantai Remis. The trawlers in Pangkor were converted from large purse seiners and this, as already mentioned, had in fact caused many fishermen to become unemployed. Thus, in the case of Pangkor, movement out is relatively high and is partly indicated by the large

TABLE III
MOVEMENT OUT OF VILLAGES OF ORIGIN

Information Provided by Respondents in:	Respondents from Villages Other Than Present		Respondents with Brothers/Sisters* Residing in Villages/Towns Other than Their Own Village of Origin		Respondents Who Married Women from Villages outside Their Present Village	
	Number	% of Sample R†	Number	% of Sample R	Number	% of Sample M‡
Pangkor	16	47.0	20	58.8	11	68.8
Pantai Remis	25	73.5	15	44.1	22	81.5
Total number and overall average percentage	41	60.3	35	51.5	33	76.7

Source: Survey data.

* They are not necessarily presently residing in Pangkor or Pantai Remis. Most of these have moved out to other towns and taken up other forms of occupation besides fishing.

† R refers to the total sample of respondents. These totalled 34 in Pangkor and 34 in Pantai Remis.

‡ M refers to married respondents. There were 16 in Pangkor and 27 in Pantai Remis.

TABLE IV
FISHERMEN'S MOVEMENT: WITHIN THE DISTRICT AND BETWEEN DISTRICT/STATE

	Total Number of Movers		Movement within District		Movement between District/State	
	Number	%	Number	%	Number	%
Pangkor	16	100	14	87.5	2	12.5
Pantai Remis	25	100	18	72.0	7	28.0
Total number and overall average percentage	41	100	32	78.0	9	22.0

Source: Survey data.

number of respondents having brothers who have moved out to other villages (see Table III).

As also seen in Table III, 76.7 per cent of those married have married women from other villages. However, the proportion of such marriages is substantially higher in Pantai Remis than in Pangkor, being respectively 81.5 per cent and 68.8 per cent. As observed earlier, most of the fishermen in Pantai Remis were new to the village. Many of them were already married before they moved into Pantai Remis and had brought along with them their own families. Thus marriage had been the main vehicle for movement in the case of the female constituent of the population.

The discussion so far has been mainly in terms of the movements made by adults. The outflow from these two villages selected for study has not been determined but has only been summarily referred to in the previous section. This is because the data in Table III cannot provide a very clear indication of the outflow that could have occurred. Thus it was decided to trace the movements of respondents' children because this would act as a clearer gauge of the mobility of the potential labor force from within the fishing industry. This would in fact be the group that the TMP will have to cater for. Table V provides a breakdown by village of the number and proportion of respondents who have children of above seventeen years old and the proportion of those who have children who are able to move out to other areas. This was to prevent any bias in the analysis which would occur if the base had been made up of the total number of children. The younger children would obviously be immobile because they are too young to move out on their own. To include these would make the proportion of movers unduly small. The cut-off age was seventeen because this was the general average school leaving age.

As seen from Table V, only about twenty of the total number of forty-three married respondents had children above seventeen years old. They had amongst them a total of sixty-one children of this age group but only 19.7 per cent of those above seventeen years old did move out to other areas. Based on the data

TABLE V
GEOGRAPHICAL MOVEMENT: THE RESPONDENTS' CHILDREN

	Respondents Who Have Children above 17 Years Old		Respondents Who Have Children Who Have Left Home and Moved Out to Other Areas		Children above 17 Years Old		Children Who Have Moved Out	
	Number	%	Number	%	Number	%	Number	%
Pangkor	7	100	3	42.9	18	100	3	16.7
Pantai Remis	13	100	5	38.5	43	100	9	20.9
Total number and overall average percentage	20	100	8	40.0	61	100	12	19.7

Source: Survey data.

in Table V, it is estimated that there are 2.6 and 3.3 children aged above seventeen years old to every parent in Pangkor and Pantai Remis, respectively, but the respective ratio of child-movers to parents are only 0.4:1 and 0.7:1. This indicates low mobility. For every seventeen years old who was able to move out, five remained behind. Thus geographical mobility is poor. The main problem related to geographical immobility is low occupational mobility.

To gauge the occupational mobility of these fishing households, it was decided to use the employment status of the respondents and their brothers and sisters. Occupational mobility could not be based entirely on the occupation of the sample of respondents because they were all fishermen and hence would provide little indication of job mobility. The main purpose was to gauge whether children from fishing families could take up other occupations and the reasons for their being able to do so. It is for the same reason that the sample comprising all the respondents' children is not used because most of the children are still under twelve years old and hence most of them would be unemployed. At the same time, data on the occupational status of those children above seventeen years old was not used because many of them had only reached seventeen and were still in the process of searching for jobs. The sample presented in Table VI is therefore made up of the fishermen interviewed and their brothers and sisters. From Table VI, it can be seen that an overall average of 45.5 per cent of the total sample became fishermen. This is in fact a severely underestimated proportion because the base includes womenfolk and children who obviously would not be able to take up fishing. If housewives, those still studying and those classified under "miscellaneous," were excluded in an attempt to find a base sample which includes only those who are presently actively employed, the tendency for children from fishing families to become fishermen becomes more pronounced. The overall average proportion of those engaged in fishing is 73.4 per cent or nearly three-quarters of those in active employment as illustrated in Table VII.

Of those holding employment other than fishing a significant proportion (34

TABLE VI
EMPLOYMENT STATUS OF FISHERMEN: RESPONDENTS AND THEIR BROTHERS AND SISTERS

	Total Sample		Fishermen		Other Occupation*		Housewives		Students		Miscellaneous†	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Pangkor	173	100	88	50.9	26	15.0	31	17.9	18	10.4	10	5.8
Pantai Remis	148	100	58	39.2	27	18.2	32	21.6	14	9.5	17	11.5
Total number and overall average percentage	321	100	146	45.5	53	16.5	63	19.6	32	10.0	27	8.4

Source: Survey data.

* This includes a wide variety of jobs most of which is manual with only a few holding clerical post.

† The figures in this column include the unemployed.

per cent) found jobs in the agricultural sector (Table VIII). The most frequently quoted employment was rubber tapping. Several were employed in land development schemes. Those who found nonagricultural jobs were variously employed as soldiers, clerks, and laborers. Out of those who found nonagricultural jobs, only two held white-collar jobs: one was a teacher, the other was a clerk in the Fisheries Development Authority. Thus while a fair proportion was holding nonagricultural jobs, most of these jobs required only manual unskilled laborer.

A study of all those (excluding fishermen) who were able to move out to other forms of occupations and area found that they did have some form of education. This is illustrated in Table VIII where, as can be seen, fifty-two out of all fifty-three were educated. However, nearly 75.5 per cent of them had only primary education while only 22.6 per cent had secondary education. The highest standard of secondary schooling achieved was 0-Level. None had any technical or vocational training. This deficiency in their training and education had restricted the scope and choice of employment open to them so that, although many were able to find nonagricultural jobs, most of these were not highly remunerative. The distance of these villages from the towns and cities reduced further the types of employment within their reach. Low mobility (only 26.6 per cent were able to find other jobs besides fishing) may in some cases be due to the lack of economic incentive but this inadequacy is not general nor wide-

TABLE VII
FISHING AND OTHER OCCUPATIONS

	Total Sample of Actively Employed		Employment			
			Fishing		Other Occupations	
	No.	%	No.	%	No.	%
Pangkor	114	100	88	77.2	26	22.8
Pantai Remis	85	100	58	68.2	27	31.8
Total number and overall average percentage	199	100	146	73.4	53	26.6

Source: Survey data.

TABLE VIII
EDUCATION AND EMPLOYMENT

	Those Who Have Assumed Other Occupations		Education				Employment			
			Primary		Secondary		Agricultural		Nonagricultural	
	No.	%	No.	%	No.	%	No.	%	No.	%
Pangkor	26	100	19	73.1	6	23.1	8	30.8	18	69.2
Pantai Remis	27	100	21	77.8	6	22.2	10	37.0	17	63.0
Total number and overall average percentage	53	100	40	75.5	12	22.6	18	34.0	35	66.0

Source: Survey data.

spread because, as seen earlier, fishermen were found to be willing to move out of their previous villages in pursuit of catch and employment.

III. POTENTIAL NEW ENTRIES INTO THE LABOR FORCE

To establish a rough estimate on the future size of the gross labor force that could be generated from within fishing communities and the problem that the fishing industry will have to cope, an attempt was first made to find the numbers that constitute a family unit and the ratio of children to parents. The results have been compiled into Table IX.

The decision to make use of the family unit as a basis for study instead of the household was partly taken because of the author's own interest in the size of a fishing nuclei family and the ratio of existing to potential fishermen. As explained in the footnote above, the study was not designed specifically to measure labor force or mobility, the information presented here being a by-product of a general socioeconomic study of fishing families. This task would be more difficult if the household had been made the unit of study because a household comprises all those living under the same roof and this may include transient members, those temporarily unemployed, on vacation, dependent aunts and uncles. The inclusion of these members does not show the future labor force from each fishing family (the author's interest) with the family unit being defined here as a basic biosocial unit comprising two or more adults living together and cooperating in the care and rearing of their own or adopted children.

However, one of the major problems with attempting to gauge the average size of a family was that 75 per cent of the respondents interviewed were below fifty years old as could be seen in Table X. If we accept the hypothesis that there is a general tendency for human fertility to fall with age and if fifty years mark the beginning of a definite decline in productivity—the highest rate of natural increase are provided by those falling within the twenty to forty-four age group [2]—it means that the families of the major proportion of the respondents are still growing. Thus it was decided to cross-check the data provided by the respondents with data collected on the sizes of the respondents' parents families (Table IX) because 56 per cent of the respondents' parents were

TABLE IX
THE SIZE OF FAMILIES

Families Belonging to:	Information Obtained from Respondents in:							
	Pantai Remis				Pangkor			
	Size of the Sample	Minimum Number	Maximum Number	Mean Average	Size of the Sample	Minimum Number	Maximum Number	Mean Average
1. Respondent's parents	34	3	11	6.4	34	3	12	7.1
2. Respondent	27	3	11	6.4	16	2	10	6.6

Source: Survey data.

above fifty years of age and hence their families would provide more reliable indication of what represents an average number in a family.

As can be observed from Table IX, the mean average number in a family is around six to seven. Despite the fact that the families of respondents have a higher growth potential than those belonging to the respondents parents, the mean average size of both is fairly close. This indicates that, in spite of the intensive family planning program, families tend to be larger than in previous years. The mean average figure of six to seven means that every married couple produces about four to five children that should eventually enter into the labor market in search for jobs.

The entry point into the labor force, that is, the time when jobs must be provided for these potential units of labor force, is determined by their present age distribution. To provide some indication of this, the total sample of children of the respondents interviewed (see Table XI) was divided into three different age groups: those below twelve years old, those from twelve to sixteen, and those above seventeen years old. This division is based on the age distribution of school-going children in Malaysia. A twelve years old will normally have completed primary education while a child of seventeen years will have reached the O-Level. This is a fairly uniform pattern because the system of promotion in Malaysia has made it possible for each child to progress automatically from one level to another until Form 3 where he has to sit for the Lower Certificate of Education (LCE) before he can proceed to O-Level.

Table XI shows that more than 50 per cent of the children are less than

TABLE X
DISTRIBUTION OF FISHERMEN INTERVIEWED BY AGE GROUP

Respondents	Size	Below 20	20-29	30-39	40-49	50 and above	Total Sample
Pantai Remis	Number	6	5	7	4	12	34
	Percentage	17.6	14.7	20.6	11.8	35.3	100
Pangkor	Number	8	11	6	4	5	34
	Percentage	23.5	32.4	17.6	11.8	14.7	100
Total sample	Number	14	16	13	8	17	68
	Percentage	20.6	23.5	19.1	11.8	25.0	100

Source: Survey data.

TABLE XI
DISTRIBUTION OF RESPONDENTS' CHILDREN BY THEIR AGE GROUP

Place	Total		Below 12		12-16		17 and above	
	No.	%	No.	%	No.	%	No.	%
Pantai Remis	115	100	59	51.3	13	11.3	43	37.4
Pangkor	74	100	43	58.1	13	17.6	18	24.3
Total number and overall average percentage	189	100	102	54.0	26	13.8	61	32.3

Source: Survey data.

twelve years old. This incidentally indicates a high dependency ratio because children below twelve have to be supported since education is compulsory for all up to the age of twelve. Only 42.6 per cent (49) out of the total of 115 children in Pantai Remis held jobs. Although the number of those working (49) is nearly equal to the number (43) of those who are above seventeen years old (the school leaving age), this does not mean that those who are working have completed their secondary O-Level. None of the respondents' children in Pantai Remis had completed O-Level and Primary 6 was the highest level achieved. The case presented by Pangkor is the same with only a slight difference. The percentage of children below twelve are larger than that found in Pantai Remis while the proportion of children above seventeen is less. Only 22.9 per cent (17) of the total number of children in Pangkor are working while 47.3 per cent (35) are studying. Assuming that those working are economically independent, this leaves a ratio of 3.6 dependent children per parent, a figure which is substantially higher than that found in Pantai Remis. Besides the two categories of children, i.e., those working and those at school, there is a third group and this comprises children who are neither working nor studying. Their percentage in Pangkor is around 29.8 per cent, i.e., nearly one-third the total. These are mainly those who have left school at an early age and could not find jobs⁶ because of lack of proper education. Table XII illustrates the achieved level of education. None of the respondents themselves—all fishermen—have any secondary education although a significant proportion have some amount of primary schooling. This leaves 17.6 per cent with no formal education at all. This makes the second observation—the low level of education attained by the children of respondents—an alarming one. Only 61.8 per cent and 37.5 per

TABLE XII
LEVEL OF EDUCATION ACHIEVED

Sample	Information from	Size of Sample (No.)	Percentage out of Total Sample Who Have Received Education of the Following Levels	
			Primary	Secondary
Sample of respondents (fishermen)	Pantai Remis	34	82.4	0
	Pangkor	34	82.4	0
Overall average		68	82.4	0
Sample of respondents (children)	Pantai Remis	115	61.8	0
	Pangkor	74	37.5	0
Overall average		189	49.7	0

Source: Survey data.

⁶ In fact, there is strong indication that children seek employment at an age much lower than seventeen years. Poverty at home makes it impossible for them to rely totally on their parents.

cent of the children in Pantai Remis and Pangkor, respectively, had attended or is presently still attending primary school. It cannot be concluded that the entire remaining respective 38.2 per cent and 62.5 per cent of the children in these two areas had no formal education because a proportion of them are below school going age. However, from Table XI, it can be seen that 32.3 per cent of the total sample of the children are within or past the secondary school age bracket. Yet none received secondary education as shown in Table XII. Those who are working are variously employed as fish sorters, fishermen, and laborers. This increases the probability that many of these children will take up fishing in the future.

A large male to female ratio would compound this problem of a future influx into an industry, already labor-congested and over-developed, because fishing is an activity normally taken by men rather than women. Moreover, since in a tradition-bound community the menfolk has a more active economic role,⁷ this feature can add considerably also to the urgency of the problem of providing more jobs. This problem prevails in the Dindings.

The high male to female ratio seen in Table XIII makes the problem of creating jobs more urgent, for generally, even in the more developed economies, the female constituent of the population will join the labor force only if the level of economic activity is high. Thus, in the present situation, the creation of job opportunities for the male constituent of the population takes priority since they are the breadwinners and the potential industry workers. Although the present preliminary findings as summarized in Table XIII cannot be taken as representative of the entire economy, it is an issue which is worth exploring if an estimate of potential labor force growth within the fishing community is to be established. Certainly the need for such an estimate exists because unlike most other industries fishery cannot be continuously expanded—its labor absorption capacity is limited. Yet, on the other hand, the fishing community is such a close community, made even more tight by the lack of opportunities and low education, that the problem becomes magnified especially as there is every possibility that the children of fishing families will eventually take up fishing.

TABLE XIII
SEX DISTRIBUTION

Information Obtained from Respondents in:	Total Male Children	Total Female Children	Male to Female Ratio
Pantai Remis	75	40	1.9:1
Pangkor	47	27	1.7:1
Overall average (to nearest)	61	34	1.8:1

Source: Survey data.

⁷ Trengganu and Kelantan on the east coast of Peninsular Malaysia are exceptions to the rule because women there take a more active economic role as traders than the men. The small business enterprises in the market place are run predominantly by women.

Thus, the large number of children per family, their low level of education and training, and their occupational immobility have been the main reason for the vicious cycle of overmanning the fishery and the underemployment of individuals. Since there is a good evidence of fishermen's willingness to move, their immobility seems to be a condition imposed from without. Hence an alternative strategy besides the present provision of subsidies to fishermen to buy new boats and fishing gear is needed. The money used to subsidize the expansion of fishing activity in waters which are already overfished is better utilized if they are used to train and equip the young people less entrenched in the traditional social setup to take on other occupations. This could be done by drawing them out to the urban areas for centralized training and then helping them to find jobs. Alternatively it may be possible to provide incentives and inducements to the private sector to locate their manufacturing plants and business enterprises in the vicinity of fishing communities. These incentives could be in the form of tax reliefs plus subsidies for those who are willing to train and employ. A wide range of subsidies could be used. The employment of the workers may be subsidized until they are fully qualified. An outright grant may be given to the firms concerned. The social dislocation involved may be less than what would have to be experienced if the individual had to take the initiative of going out on his own. An entire group with the same background would be now experiencing the same changes which should make the socio-cultural change more palatable. It is possible that the change will be less extreme also because the group's restraining influence on the individual prevents drastic dislocation. This alternative could become integrated in the present program of industrialization but with the industries creating employment where needed and at the same time benefiting eager and inexpensive labor.

REFERENCES

1. TAN CHENG ENG; YAP CHAN LING; and TAN CHENG KIAT. "Small-Scale Fisheries Development Policies and Programs in Malaysia: An Assessment of Social Science Research Needs," in *Small Scale Fisheries Development: Social Science Contribution*, ed. Brian Lockwood and Kenneth Ruddle, Proceedings of a Planning Meeting held at the East-West Food Institute, Hawaii, September 6-11, 1976.
2. THOMAS, B. *Migration and Economic Growth* (Cambridge: Cambridge University Press, 1973).
3. YAP CHAN LING. "The Cost and Construction of the Pukat Jerut Malam Gear and Boat," *Malaysian Agricultural Journal*, Vol. 48, No. 4 (1972).
4. ————. "Fish Marketing Mechanism with Specific Reference to the Dindings and the Kuala Lumpur Wholesale Market," *Review of Agricultural Economics, Malaysia*, Vol. 4, No. 1 (1972).
5. ————. "Overexpansion in the Trawler Industry: With Specific Reference to Dindings District of West Malaysia," *Kajian Ekonomi Malaysia*, Vol. 10, No. 2 (December 1973).
6. ————. "Traditional Fishing Models vs. Modern Fishing Theories: A Brief Comment," *Review of Agricultural Economics, Malaysia*, Vol. 6, No. 1 (1975).
7. ————. "Trawling: Its Impact on Employment and Resource Use on the West Coast of Peninsular Malaysia," in *Small Scale Fisheries Development: Social Science*

- Contribution*, ed. Brian Lockwood and Kenneth Ruddle, Proceedings of a Planning Meeting held at the East-West Food Institute, Hawaii, September 6-11, 1976.
8. ————. "Fisheries Development on the West Coast of Peninsular Malaysia," in *Economics of Fisheries in Asia*, ed. Aida R. Librero, W. Collier, and V.P. Talaboc, Proceedings of the Agricultural Economic Society of Southeast Asia's Second Biennial Meeting at the Southeast Asian Fisheries Development Center, Tigbuan, Iloilo, Philippines, November 3-6, 1977.
 9. ————. "Fishery Policies and Fisheries Development on the West Coast of Peninsular Malaysia from the Early 1900s," in *Fisheries Development* (Kuala Lumpur: University of Malaya, 1977).
 10. ————. "The Impact on Fishermen's Cooperative Movement on the Development of the Fishing Industry in Post Independent Malaysia," in *Economics of Fisheries in Asia*, ed. Aida R. Librero, W. Collier, and V.P. Talaboc, Proceedings of the Agricultural Economic Society of Southeast Asia's Second Biennial Meeting at the Southeast Asian Fisheries Development Center, Tigbuan, Iloilo, Philippines, November 3-6, 1977.
 11. ————. "Poverty in the Fishing Industry: An Analysis of the Profit Sharing System in the Dindings," in *Some Case Studies on Poverty in Malaysia*, ed. B. A. R. Mokhzani and Khoo Siew Mun (Kuala Lumpur: Persatuan Ekonomi Malaysia, 1977).
 12. ————. "A Socio-economic Analysis of the Problems of Overexpansion on the West Coast of Peninsular Malaysia," Paper presented to the Seminar on the Malaysian Fisheries—A Diminishing Resource, Penang, July 1977.