The Impact of an Integrated Agricultural Development Program on Migration in Malaysia

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ABSTRACT

This paper examines the impact on migration of an Integrated Agricultural Development Project (IADP) in Peninsular Malaysia. The study is based on an in-depth community-level and household-level survey in two small rural communities, one where the IADP had been in effect for about four years and was considered by the Government's criteria to be successful and the other where the project was only in the initial stages of implementation. A series of careful examinations of the survey data reveal that there are no consistent patterns of differences in the migration variables between the two sites. This implies that rural development can both stimulate migration by bringing rural populations into the mainstream of the larger society and retard it by improving local conditions. To the extent that these forces, operating in opposite directions, also have impacts of more or less similar magnitude, we cannot expect schemes such as the IADP to curb the influx of rural dwellers to urban centers.

I. Introduction

Rural development schemes engender, implicitly or explicitly, population mobility policies. The precise impact of rural development upon migration is, however, difficult to specify because the migration outcomes are most likely conditioned by local conditions. A successful rural development scheme which improves the well-being of farmers and other rural dwellers almost surely impedes migration among the middle-aged and older population because it narrows, if it does not close, the gap between the expected benefits of moving to an urban area and the known and improving circumstances of remaining in one's rural environs. The retention of some older rural residents, who might have moved without successful rural development, cannot, however, have much of an impact upon overall migration flows, since middle-aged and older persons are less likely to move in the first instance. It is, therefore, the impact of rural development upon the younger generation which is pivotal, but also problematic.

Obviously, a successful rural development scheme makes an area more attractive to younger residents, much as it does to older residents. However, virtually all rural development involves greater con- tact with urban centers and government agencies situated in them. In genuinely isolated rural villages, increased knowledge of urban centers and opportunities can be a stimulus for migration particularly for the younger generation. Thus, a successful rural development-scheme contains contradictory inputs. It improves local conditions which retard migration, but it may also increase the awareness of urban opportunities, thus stimulating migration.

This study examines the impact on migration of an Integrated Agricultural Development Project (IADP) in Peninsular Malaysia. The study is based on an in-depth community-level and household-level survey in two small rural communities, one where the IADP had been in effect for about four years and was considered by the Government's criteria to be successful (an IADP project in the state of Malacca) and the other where the project was only in the initial stages of implementation (in Negri Sembilan Timur). The survey was intended to study the demographic impact of a development input (fertility and migration behavior) and was conducted in 1985. It covered a total of

257 rural Malay households in the Malacca IADP area and 261 households in Negri Sembilan Timur (NST) where both head of household and spouse were living together and the wife was below 50 years of age.

The purpose of the "integrated" approach in agricultural development was to ensure that all components necessary for the intensification of agricultural production were available and functioning effectively and complementarily when needed by farmers. The IADP was intended to bring together in a well coordinated and synchronized manner all the components -- rural roads, supply of inputs, extension services, land use intensification, crop diversification, credit and marketing and processing facilities, etc. -- necessary to bring about a substantial change in the pace of development of selected areas. The IADPs were intended to help meet the objectives of the country's New Economic Policy to "redress any economic disparities in existing areas and to enhance their growth potentials in order to attain a better standard of living" (Ministry of Agriculture 1982:2) for the rural population. With the intensification in the provision of input facilities and services in the managed area of the IADPs, farm incomes were expected to increase directly and off-farm rural incomes to increase indirectly.

In an attempt to reduce the influence of extraneous variables (other than the development input), the two geographical sites of the survey were matched in terms of both being designated IADP areas, being rural areas cultivating roughly the same crops, in terms of being within the same radius from the industrial, commercial, educational and administrative capital of Kuala Lumpur, and in terms of being Malay areas so that only one ethnic group was covered. The one complication was that the Negri Sembilan community was based on a matrilineal system, while the Malacca community followed the common patriarchal system.

At the time of the survey, Table 1 shows that Malacca was still significantly less developed than Negri Sembilan, although over the period 1980-1985 the rate of economic growth had been much more rapid in the former state. Other socioeconomic indicators also suggested that there had been substantial relative improvements in Malacca over the period 1980-1985. Open unemployment was, however, higher in Malacca and natural resource development was very limited, in part due

to limited land availability.

II. Migration and Rural Development

In the context of the areas studied, there can be little doubt about the net balance of the pushes and pulls associated with successful rural development, such as the IADP. In both Malacca and Negri Sembilan, the rural population is neither physically isolated nor otherwise insulated from the influence of urban centers. Apart from their own state capitals (Malacca town in Malacca and Seremban in Negri Sembilan) which are relatively large urban centers, both areas are well linked to the nation's capital of Kuala Lumpur. Under local conditions such as these, it is very unlikely that the IADP could have had much impact upon the awareness of urban opportunities. Rural residents already had the kinds of tangible knowledge and less tangible impressions of urban life and opportunities that they might otherwise have had to glean from a rural development program.

The upshot of the foregoing remarks is that the reduced pushes from the implementation of the IADP in Malacca should impede migration. In general, we would expect to find higher levels of recent migration and also of migration intentions in rural Negri Sembilan than in rural Malacca. But there is, however, one serious confounding factor which may work in favor of this general hypothesis, even if the impact of a successful IADP on migration was nil.

With the matrilineal system of inheritance widespread in NST, a system of temporary migration among men has evolved. Because males customarily do not inherit property, young men are expected and commonly do leave NST to acquire experience and accumulate some modest amount of capital. Subsequently, many of these young men do return to Negri Sembilan, settle down and begin the process of family formation (see, for example, Khatijah 1978). Thus, in NST where migration is expected to be higher because the IADP was just in the initial stages, it was also encouraged by a matrilineal pattern of inheritance and property control. The pattern of return migration associated with the matrilineal inheritance system closely resembles the practice of "merantau" among the Minangkabau of contemporary Indonesia. "Meran-

tau" roughly means leaving one's village in search of wealth, knowledge and fame (Kato 1982:52). Similarities between merantau and the patterns observed in NST are hardly surprising since much of the Negri Sembilan population consists of descendents of Minangkabau immigrants from Indonesia.

Owing to the nature of the sample and of the questions asked in the survey, some but not all of the migration indicators are influenced by the different patterns of inheritance between Malacca and Negri Sembilan. But our aim is to determine the impact of the IADP on migration. The first step in this study is, therefore, to examine the migration variables and their distributions in the two sites, being careful to indicate how they are likely to be affected by the contrasting inheritance systems. Second, we inspect the relationships between the migration variables, controlling for site. We then present the relationships of each of the migration indicators, within the two sites, to a host of control factors known to affect migration, migration decision-making and migration intentions. In these initial analyses, we rely on tabular methods and largely eschew statistical testing since the purpose of these sections is to present the basic data. In any event, the samples are too small to sustain a genuine multivariate analysis in a tabular format because we run out of cases once four variable cross tabulations are introduced. The final section turns to regression methods in order to sort out the factors affecting migration in a multivariate framework.

III. Migration Experiences and Intentions

Since the samples available for analysis are of rural residents, they contain no actual out-migrants from either the Malacca or NST IADP areas. The samples do include in-migrants and return migrants and, of course, harbor a number of potential migrants. Indirect evidence on actual out-migrants is, however, available, since information was obtained about the migration of household members other than the head or his spouse. In all, six migration indicators were culled from the questionnaire addressed to husbands and are examined here.

The first two variables pertain to the actual migration experi-

ences of the husband and to the mobility of household members in the three years preceding the survey. Husbands were asked to report both the number of moves they had made since age 15 and the number of household members who had moved in the last three years. The distributions of these variables are shown in Tables 2 and 3.

Since the pattern of return migration found in Negri Sembilan is part of the Minangkabau cultural tradition imported from an alternative environment, we would expect to observe a relatively larger number of moves than would be found in an otherwise comparable social and economic setting. But Table 2 roundly disconfirms the expectation that NST males would exhibit a larger number of migratory moves than their Malacca counterparts. As the table shows, more Malacca men than NST men were migrants. Furthermore, a pattern of return migration implies that the number of migratory moves reported by current residents would exhibit heaping on two and perhaps on a larger number of moves. But it was Malacca, not NST, men who exhibited substantial heaping at two moves. The only evidence in the table which is consistent with the presence of an extensive merantau tradition in NST is a slightly larger fraction of NST men who reported three or more moves. Although the differences between the two distributions in the table is not substantially great at most points in the distributions, they are statistically significant ones, as shown by the chi-square value.

There were at least two factors at work which led to the seemingly contradictory finding reported in Table 2. One of these factors operated to raise the level of migratory moves in Malacca and the other pertained to features of the "merantau" tradition presumed to operate in NST. The operation of both features hinged on the fact that the data in the table pertain to lifetime migration.

Because Malacca was comparatively less economically developed than NST, there may have been greater pressures especially in the past for out-migration in Malacca. However, the recent upturn in the pace of development in Malacca may have encouraged return migration, as well as attracted some new in-migrants. This may help to explain why the number of lifetime moves in Malacca is heaped on two and, also, why there are relatively more migrants in Malacca than in NST.

But there could also be other contributory factors to the differ-

ences observed in Table 2. As it was practiced and evolved in Indonesia, "merantau" does not necessarily involve circular migration. Circulatory "merantau" tends to be limited to individual males and is mainly directed towards cities and towns within a relatively short distance. The individual males typically return home several times a year to see their families and relatives. However, there are also other types of more permanent "merantau" involving nuclear families. Kato (1982:30), for instance, describes "merantau Cina":

> "A husband on migration may later send for his wife and children from the village. A bachelor on migration may *eventually go home to get married in the village and* take his bride to the destination of his migration. In either case, 'Chinese merantau' has strong overtones of geographical mobility by nuclear families already realized or yet to be realized. The movement covers a long distance and it is directed to large urban centers ..... In this form of merantau, people often stay away from the village for a longer duration than in circulatory merantau and they seldom go home to visit. The mobility is semipermanent, not necessarily in intention but in consequence."

The possibility of permanent or semipermanent merantau sheds new light on the comparison between lifetime migration in Malacca and NST. Since the sampling frame for the present study called for interviews only with families in which both husband and wife were present, the study could not identify any married men who had left on more permanent moves. The NST male respondents were those who had already chosen to settle down with their families in the area. Moreover, for them, the push factors would not have been so strong as the pressure for migration in rural Malacca since Negri Sembilan was more developed. In this light, the data, being more nearly dominated by the early pushes and later pulls as rural development unfolded in Malacca, should and do show greater lifetime migration among the Malacca than NST husbands.

Table 3 shows that contrary to the data on lifetime migration of the male respondents, the data on recent migration moves by other

household members are both orderly and in the expected direction. Discriminant analysis confirms the two sites to be differentiated in terms of the number of household members who had migrated out in the three years since the implementation of the IADP. Table 3 shows that over the past three years, households in the NST area were more likely than those in the Malacca IADP area to have experienced out-migration of household members. In addition, migration losses in NST households were more likely to be multiple ones, while in Malacca the loss of a single household member was more common. The differences in the table are not absolutely large, but they are orderly and statistically significant at the 0.05 level. Almost all the out-migrants from NST were children from these households, while in Malacca there were a number of siblings of the husband or his spouse who migrated. What was also striking was that job-related reasons for out-migration were more important in NST than in Malacca, as evident from Table 4. Leaving NST for jobs outside were likely to reflect the relative lack of economic opportunities in the site.

The final four migration indicators refer to perceptions of population mobility and migration intentions of several kinds. The first two indicators refer to the respondent's comparative assessment of mobility into and out of the site and the eagerness of people to move from the area now relative to their eagerness to move three years ago. The third indicator refers to the respondent's own migration intentions. The final indicator taps the respondent's migration intentions for his children by asking where he wants (not where he expects) his children to reside as adults. For the final indicator, the responses have been dichotomized according to whether the respondent answered "in this village" or somewhere else (including "it was up to the children to decide" -- only a handful replied that it was up to their children to decide). The distributions of the subjective indicators of migration are exhibited in the top three panels of Table 5.

The first panel of Table 5 shows the respondent's perception of changes in migration flows since the implementation of the IADP. When asked to compare migration patterns in the past three years, a considerably larger proportion of those in NST claimed that more people had moved out than in. Another indicator that the IADP might have had an impact in terms of making it more attractive for people to remain in

the community rather than to move out is also found in the second panel of the table. Malacca respondents were much less likely than NST respondents to report that people were more eager to move now than three years ago and somewhat more likely to report they were less eager to move. Furthermore, the result is unlikely to be affected by the presence of the Minangkabau tradition of "merantau" in NST. The question refers to change over a relatively short period, so that the strength of a cultural tradition like "merantau" may be presumed constant. In both the first two panels of the table, the difference between the two distributions is statistically significant at the 0.001 level and substantially quite large.

The third panel of Table 5 reports the migration intentions of the Malacca and NST husbands. As was the case with lifetime migration patterns of the two groups, the results are contrary to expectations. Married Malacca men in rural areas were more, rather than less, likely to have migration plans than their NST counterparts. The difference is not large, but it is nonetheless statistically significant at the 0.05 level. The explanation for the results for migration intentions is parallel to that for lifetime migration. It underscores the fact that despite the successful implementation of the IADP, Malacca farmers were still concerned about the adequacy of farmland for providing a steady and reasonable level of incomes (refer to Table 6) and still looked to nonfarm work (and the geographical mobility such work implied). It may also suggest that there was no widespread propensity for more permanent forms of "merantau" once NST men had married and settled down to family building.

The bottom panel of Table 5 shows whether or not respondents desire their children to live in their current village. Malacca husbands were considerably more likely to want their children to continue living in the same village than were NST husbands. Although a majority of both groups preferred their children to live in their current village, permanent migration appeared more acceptable in NST. This is, of course, to be expected in communities where merantau is a tradition. The results are also consistent with the view that the IADP had reduced economic pressures for migration in Malacca. The difference in the attitudes of Malacca and NST men towards the migration of their children is not only substantitively large, but statistically

significant at the 0.001 level.

The results for the six indicators of migration examined in this section are mixed, with four of the gross differences indicating greater migration or migration potential in NST and two indicating the reverse. Although this situation introduces some puzzles which must be sorted out, it is in another regard, fortunate. Because the data are not entirely indicative of greater migration in NST, they imply that these indicators are not completely dominated by the "merantau" tradition in NST. Such a circumstance means that any explanation of the differences between the communities will likely involve (i) differences in their socioeconomic characteristics, which can be controlled, (ii) the prevalence and strength of "merantau" in NST, and (iii) the impact of the IADP in Malacca.

In this section, we employed statistical tests of the differences to make clear that there is something to be explained. With five indicators, excluding lifetime migration, of a general phenomenon, split 60-40 in the direction of the results, one might be inclined to regard the differences as kindred to white noise. However, the observed differences are significant ones, without exception, and they all have plausible, albeit sometimes competing, explanations.

IV. Interrelationships Between Five Migration Indicators

A plausible causal structure can be imposed on the migration indicators. This arrangement is displayed in Figure 1, where the ordering of the variables moves from objective experiences to subjective perceptions and migration intentions. By its very nature, lifetime migration experience antedates all of the remaining variables since it has already occurred. The only exception is the relationship between past migration experiences of the respondents and those of household members during the past three years. Logically, it is possible for some of the out-migration of household members to have occurred before the respondent himself joined the household, but that could only involve a handful of cases owing to the ages of the respondents, which are largely beyond the peak years of migration, as well as to the limited number of movers among both respondents and household members

(as shown in Tables 2 and 3). Thus, the causal ordering postulates that the migration experience of the respondent stimulates the migration experiences of other household members. This occurs in part because the respondent's experience can be tapped as a resource by other household members, whose lack of knowledge about how to find work in new settings and how to get around their destinations might retard their willingness to move. In addition, the respondent's descriptions of his experiences, especially if they were salutory ones, may stimulate a desire among his household members to have firsthand experiences in other environments.

Experience is a significant crucible of beliefs and interpretations. A respondent who has himself moved around and whose own household members are migrating is apt to generalize those experiences to others in their area. Thus, we regard the respondent's assessment of community changes in the pattern of migration flows and in the propensity to move since the implementation of the IADP as potentially dependent upon his own lifetime migration and the recent migratory behaviour of the members of his immediate household. A respondent whose household had experienced recent out-migration is more likely to have had the impression that the dominant migration flow was out of rather than into his area and that the community propensity for out-migration had increased.

Intention, like beliefs and interpretations, are made in the cauldron of experience, so one plausible postulate is that lifetime migration experiences and the recent migratory moves by both household members and others in the community are factors in the rational calculus of intentions. There are, however, sound and competing hypotheses about the impacts of these variables upon the respondent's migration intentions. The mover-stayer model of migration, for instance, postulates that a history of lifetime moves inclines one to have intentions for future moves (but it is important to recognize that "movers" and "stayers" are latent classes, not empirical aggregates of those who have moved and those who have not. Some "movers" have never moved for want of opportunities and some "stayers" have moved many times because necessity is always on their heels). (For some literature on this model, including its application to other types of mobility, see Blumen, Kogan, and McCarthy 1955; Goodman 1961; White 1970). A com-

peting hypothesis, however, is that every individual in the population has a "lifetime potential for migration" , and every time he moves, some of the potential is used up. Furthermore, the probability of moving again declines with each successive move. This perspective is consistent with the well-known propensity for both geographical and intra-generational occupational mobility to decline sharply with age. It implies that a large number of lifetime migratory moves is inversely associated with the intention to move in the future.

There are also competing hypotheses about both the impact of the migration of household members and the impact of the pattern of community migration flows on migration intentions of those remaining. In rural areas, where farming is the predominant activity, the loss of household members decreases the labor, but not the capital inputs, to family enterprises. Even if aggregate household income declines, household income per capita may rise. Thus, the migration of some household members may decrease the propensity of the remaining household members to move because their economic position has improved. Alternatively, when some household members leave, some of the attractions of a congenial family group are lost. When the moves have economic motives as well, the remaining household members may be inclined to follow the lead of those who left and join the family migration stream. In the same way, greater out-migration from the area may reduce population densities and free land, thus making it more attractive for those remaining, or it may convince those remaining that they should follow the general trend.

Whenever there are plausible competing hypotheses about the impact of one variable upon another, the observed impact of the independent variable represents the net balance of the contradictory forces; it identifies only their relative strengths, not the magnitude of their disaggregated impacts. When the contrary forces are nearly equal, the coefficient associated with the independent variable will be close to zero if these are the only forces operative. Thus, in the cases of lifetime migration, out-migration of household members and the comparative pattern of recent migration flows, one must entertain the hypothesis that their net impact upon migration intentions is nil. This is a totally ambiguous result, since it will occur when neither force is operative and when both are operative, but of equal magni-

tude. The final migration variable is the desired place of residence for children, which is treated simply as a dichotomous variable. Someone who has himself moved many times, has his household depleted by migration, views others in his community as having moved out rather than in or as more eager to move now than three years ago, and plans to move himself is not a likely candidate to want his children to reside in his current village.

The causal ordering of the migration variables postulated in the foregoing paragraphs provides an orderly way of examining the interrelationships between the migration variables and determines the appropriate way of percentaging the underlying frequency tables which give their associations. The relationships between all of the migration indicators are displayed in Table 7, controlling for site.

The first pair of columns in the table shows the relationship between the husband's lifetime migration and whether or not his household had at least one member who had migrated out in the past three years. There does not appear to be any systematic relationship between these variables. The data follow a curvilinear pattern, with households being least likely to have experienced recent out-migration when the respondent himself had moved once or twice and more likely to have had a recent out-migrant when the respondent had never moved or moved three or more times. There is no theoretical reason to postulate such a curvilinear relationship, so that we presume there is either no relationship between the respondent's and his household's recent migration experiences or that a positive relationship between them is masked by the operation of other factors. The direction of the differences between the Malacca and NST sites in the out-migration of household members is not affected by controlling for the respondent's migration history.

In the second pair of columns in the table, there appears to be positive relationships, as postulated, of the number of times the respondent had himself moved and the number of out-migrants from his household with the perception that there had been more people moving out than into the area over the past three years. Although the relationships were not strong, the differential between the two sites in the comparison of migration flows was large.

The third pair of columns in Table 7 shows the various relation-

ships to be in the postulated positive direction. Both the lifetime migration experience of the respondent and the recent migration of household members appear to be positively related, albeit weakly, to the belief that people in the local area were more eager to move now than three years ago. The wide difference between the two sites in perception of the eagerness to move is striking and unaffected by controlling for either husband's or household migration. As expected, the perception that more people had moved out of the area in the past three years was strongly correlated with the perception that the eagerness to move out had increased.

The fourth pair of columns in Table 7 relates the respondent's migration intentions to the four previously discussed indicators. Although there is a notable exception in NST for respondents who had moved three or more times, in general the number of lifetime moves is positively associated with the intention to move again. The relationship is orderly and fairly substantial in Malacca and would hold up in NST if all migrant respondents were pooled together. These results are consistent with the expectation derived from the mover-stayer model. However, the differences between the migration intentions of Malacca and NST respondents disappear among respondents who had never moved and those who had moved only once or twice. Among frequent (three or more moves) migrants, however, there is a substantial difference in the future migration plans of those in Malacca and NST.

Out-migration of household members was negatively associated with future migration intentions in both Malacca and NST, though in neither place was the relationship a pronounced one. This is consistent with the view that out-migration of some household members may actually improve the economic circumstances of the remaining household members and undermine their propensity to move. The differences in the migration intentions of Malacca and NST respondents remain after controlling for household migration experiences, but they are quite small, especially among those whose households had experienced recent out-migration.

There is no obvious relationship between the respondent's perception of short-run changes in migration flows that had taken place or the migration propensity of local people and his own migration intentions. The data for Malacca and NST reveal opposite directions of as-

sociation, but neither amounts to more than a few percentage points. Assessments of changes in community mobility patterns or propensities did not, therefore, appear to have any relationship to the respondent's own plans.

The final two columns in Table 7 exhibit the relationships of migration intentions for children to the remaining migration indicators. The data show that in Malacca, the respondent's own migration experiences were negatively associated with the desire to have his children live in his current village. This is as expected; people who had themselves moved around were less likely to want to tie down their children. However, just the reverse is the case in NST, although there is no theoretical reason for expecting such an interaction. Pooling the data for Malacca and NST together would leave virtually no association between one's own migration experience and migration intentions for children. In terms of the relationship between out-migration of household members and migration intentions, the expected negative relationship is observed in NST, but just the reverse is observed in Malacca. Again, there is no theoretical reason for postulating such an interaction. Pooling the data from the two states left essentially no relationship between recent household migration experiences and desired place of residence for children. We conclude, therefore, that there is no gross association between actual migration experiences, whether they be one's own or those of other household members, and migration intentions for children.

In both survey sites, those who thought there had been greater out-migration from the community or that the eagerness to move out had increased since the implementation of the IADP were less likely to desire their children to remain in their village. These were the expected inverse relationships which, although observed in both sites, were particularly pronounced in NST.

Although actual migration experiences have no gross impact upon migration intentions for children once the data for the two sites are pooled, one's own migration intentions are clearly associated with desires concerning the residential locations of children. Those who intended to move were less likely to want their children to continue living in their current village. The relationship is observed in both research sites, but is more pronounced in NST.

Although some unexpected interactions appeared in the data on the interrelationships between the migration variables, there were otherwise few surprises. Relationships which did not exhibit the expected or theoretically consistent direction of association were generally nil, rather than being systematic but contrary in sign. Gross differences between Malacca and NST generally held up after one of the other migration variables was controlled. Thus, this tabular inspection of the relationships between the migration indicators primarily suggests that some of the causal linkages postulated in Figure 1 are most likely nil and can be dropped from a final summary of causal impacts. Such a conclusion, however, awaits the introduction of control factors in the next section.

V. Control Factors

To isolate the impact of the IADP, it is useful to begin by controlling for the influence of other factors which could have affected the migration variables. There are nine control factors which can be clustered into four broad variable sets relating to (i) involvement in agriculture, (ii) income, (iii) social and demographic characteristics, and (iv) a single variable which is relevant to the matrilineal inheritance system in NST.

V-1. Farm Variables

Three variables relating to the respondent's involvement in agriculture are introduced as control factors. The first identifies those whose primary economic activity was farming; the second refers to family ownership of farmland; and the third, which is an extension of the second, reflects the respondent's judgment of the adequacy of his farmland. The relationship of each of these agricultural variables to the migration indicators is shown in Table 8.

The upper panel of Table 8 reveals that participation in the agricultural sector had generally weak or unclear relationships with the various migration indicators. Furthermore, the relationships in some cases were inconsistent between the two sites. It would appear that whether the respondent was actively involved in farming or not had

little or no influence on the mobility behavior of his household members, on his perception of changes in community migration propensity or on his own migration plans. It was only in Malacca that those enengaged in farming were significantly more likely to want their children to continue living in the village (which might indicate an indirect effect of the success of the IADP).

Once participation in agriculture has been considered, it may seem redundant to introduce ownership of farmland into the analysis. This, however, is not the case, for while most farmers owned land, many whose main economic activity was in the nonagricultural sector also controlled farmland and either rented it out or worked it themselves as a secondary activity. The middle panel of Table 8 confirms that ownership of farmland was related to the migration variables in rather different ways than farm economic activity. Owners of farmland were more likely than nonowners to have experienced household outmigration over the past three years. As would be expected, owning farmland retarded the formation of future migration plans. But there is no gross relationship between ownership of farmland and migration intentions for children, since it is related to the desire to have children live in the same village in Malacca and the converse in NST. In this case, however, the interaction makes substantive sense in the context of the matrilineal inheritance system in NST. The variable at hand refers to family ownership of farmland, without regard to who in the family legally controlled the property. In Malacca, this was usually the husband, while in NST it was usually the wife. It was, therefore, reasonable for men in NST whose families owned farmland to be less likely than nonowners to want their children, especially their male children, to continue to live in their village. They did not control the land and could not pass it on to their sons; the land owned by their wives would pass on to their daughters whose own husbands would work it. As with the individual respondent's occupation, individual ownership of land had no clear gross relationship with perceptions of community mobility behavior.

Adequacy of farmland was related to out-migration of household members only in Malacca, where those who considered their land to be inadequate were more than twice as likely as those with adequate farmland to have had a household member migrate in the past three years.

The absence of such a relationship in NST may well be a reflection of the importance of the matrilineal inheritance system; opinions about the adequacy of farmland may be of little consequence in a system where land control is vested in women.

The relationships between opinions on the adequacy of farmland and migration intentions whether for themselves or their children were not substantively meaningful. The relationships between the adequacy of farmland variable and both community-related migration indicators were also not as expected; in both Malacca and NST, those who considered their farmland to be adequate were more likely to have the opinion that more people had moved out of the area and that the eagerness to move had increased.

V-2. Income

In Table 9, the two control variables pertain to the respondent's assessment of the financial position of his household relative to three years ago and to monthly household income in Malaysian dollars. In NST, the upper panel of Table 9 confirms our earlier suggestion that a household with out-migrants might consider itself better off either because per capita income would rise or because of remittances from the out-migrants. This is especially the case for NST since, as noted earlier, the majority of out-migrants left for job-related reasons. The relationship does not, however, hold in Malacca, perhaps because the larger proportion leaving for nonincome related reasons (such as schooling or marriage) may have implied no change in their financial position arising from the mobility of household members. But in Malacca, those who considered that their financial position had improved (perhaps related to the impact of the IADP) were less likely to think that their community out-migration flows and propensities had increased. In NST, however, the relationships were reversed, perhaps because those who considered themselves better off were also the ones who had benefitted from the out-migration of household members and were extending their experiences to their perceptions of the direction of community migration flows. There was no clear relationship between the financial position variable and migration intentions of the respondent, while the relationship with migration intentions for children was negative. The latter relationship, observed in both sites,

is perhaps unexpected but can be explained insofar as those who considered themselves in the worst and worsening economic positions may have been so constrained economically that they lacked the vision or ambition to desire mobility (geographical and associated social mobility) for their children or that they wanted to have their children nearby as their only form of wealth.

The second panel of Table 9 shows no clear or well-defined relationship between actual household income and out-migration of household members. But the relationships, although there were some irregularities, between household income and perceived changes in the two indicators of community-related migration behavior were generally positive. The relationship between household income and migration intentions was slightly curvilinear, with those in the highest two income groups being the most likely to report they had migration plans, followed by those in the lowest income group. The relationship between household income and migration intentions for children was also curvilinear in NST, but in Malacca it was monotonic and clearly negative.

V-3. Social and Demographic Characteristics

The social and demographic characteristics introduced as control factors are husband's age, husband's years of schooling and household size three years ago. The reason for using past, rather than present, household size is hinged on the fact that one of the migration variables refers to the number of household migrants in the three years since the implementation of the IADP. To obtain the relevant household size for studying this variable, the number of persons who migrated from the household during the past three years was added to household size at the time of the interviews.

The relationships of the social and demographic variables to the migration variables in Table 10 are generally quite orderly and often rather substantial in magnitude. There are, of course, a few aberrant figures, but that is to be expected in a sample this small. For the most part, the relationships are not only orderly, but also unremarkable and replicate the findings of other studies. Rather than describe each of these relationships, which are generally well known and well documented, we simply summarize them in tabular form, using the sym-

bols (++), (+), 0, (-), and (--) for relationships that are respectively strong and positive, weak and positive, nil, weak and negative, and strong and negative. The symbols (++) and (--) are reserved for those associations which are monotonic and exhibit at least a 15 percentage point spread in one of the two sites. For purposes of the summary tabulation, migration intentions for children were treated as though "in this village" was coded 0 and "other", which implies migration, was coded 1.

The patterns in Table 10 which are summarized in Figure 2 are clear and require no extensive additional comments. Two of the relationships involving household size should, however, be noted. Generally, as household size increases, respondents were less likely to think that local people were more eager to move now than three years ago. There was, however, an upturn, in both Malacca and NST, among those in the largest households, a result which may be due to the dramatic rise for the largest households in the probability of incurring a household migration loss. Finally, it is possible that the relationship to the intended migration of children is positive. However, the main evidence for this rests on a single figure, viz. that observed for the largest households in NST. To guard against this figure being an aberrant one, the relationship was coded nil.

V-4. Matrilineal Inheritance and Homeownership

Although there is no wholly satisfactory way with the present data set to control for the matrilineal system of Minangkabau descendents in NST, an approximate one can be introduced by examining patterns of homeownership. Table 11 exhibits the relationships of the migration indicators to a trichotomy which simply describes whether the husband, his wife, or someone else owns the house in which the respondent lives. There is scant question that this variable picks up the matrilineal descent system in NST; as can be seen from the frequencies in the bottom panel of the table, less than 10 percent of household living quarters were owned by wives in Malacca while in NST the figure approached 50 percent.

The hypothesis is that anything that attaches individuals to their community at large or to their place of residence is a barrier to mobility, since moving would entail undoing established ties and

commitments. Ownership of property is one such barrier. As can be seen in the first two columns of Table 11, in both Malacca and NST the chances of someone in the household moving in the past three years was associated with property ownership. When either the husband or wife, rather than some other party, owned the house, the household was more likely to experience out-migration of some household members. Evidently, those migrating did not have the stabilizing factor of property ownership operative in their lives.

In both sites, but particularly in Malacca, those whose wives, rather than themselves, owned the house were more likely to think that out-migration from the community had increased. In Malacca, too, the respondents were more likely to think that out-migration from the community had increased when others (excluding their wives) owned the house, rather than themselves. At least in Malacca, homeownership by the respondents themselves appeared to retard the impression that out-migration from the community had increased or that people were restless and preparing to move.

The data on migration intentions leave little doubt about the stabilizing influence of homeownership. In both sites, men who owned their homes were a little less likely than those whose wives were the houseowners to be planning a move. However, when the house was owned by neither the wife nor the husband, the chances of planning a move were at least three times larger than when either the husband or wife owned the home. This pattern which holds in both sites is consistent with the data on household out-migration, and confirms the view that property ownership, like other forms of community attachment, hinders migration.

In NST, men who owned their homes were somewhat more likely to want their children to remain in their village, which makes sense in view of the inheritance system. This pattern did not hold in Malacca, where only the handful of men whose wives were homeowners were a little more likely to want their children to remain in their village.

VI. Multivariate Analysis

The control variables introduced in the multivariate analyses are described in Table 12. Some of these require elaboration. In the regression analyses, the variable OWNERW, which denotes the wife's homeownership, is entered into the equations. However, rather than entering OWNERH, which denotes the husband's homeownership, the sum of OWNERW and OWNERH is entered (designated as OWNERHW). Thus, the coefficient of OWNERHW provides the estimate of the impact of husband's homeownership, while the coefficient of OWNERW represents the difference between the impact of husband's and wife's ownership of the family dwelling. A little algebra will demonstrate why this is so. Suppose we had entered OWNERW and OWNERH in the regressions and they achieved coefficients w and h, respectively. Then we have

$$(w)\text{OWNERW} + (h)\text{OWNERH} = (w)\text{OWNERW} + (h)\text{OWNERH} + (h)\text{OWNERW} - (h)\text{OWNERW}$$

$$= (w - h)\text{OWNERW} + (h)(\text{OWNERH} + \text{OWNERW})$$

By entering the sum of OWNERW and OWNERH in the regression, we are able to get out a comparison of husband's and wife's homeownership, rather than the comparison of each with the omitted category.

The SITE variable identifies the respondent's current place of residence. If we have controlled for all the relevant causes of the migration variables, which are also correlated with site, then the coefficient of SITE may be interpreted as the adjusted impact of the IADP, since Malacca and NST continue to differ in this way and the remaining relevant variables have been controlled. Of course, one never knows for certain that all the relevant factors have been controlled and in practice, it is difficult to identify and control all of them in any case. Caution should, therefore, be exercised in interpreting the coefficients of SITE, which plays a role parallel to the experimental variable in a laboratory experiment with random assignments of subjects to conditions. In natural and field experiments like the present one, statistical controls are used to try to

achieve what randomization secures in laboratory settings.

VI-1. Out-Migration of Household Members

The number of household members in the past three years (NUMIGR) is the first endogenous variable in the causal arrangement of migration variables postulated in Figure 1. As can be seen from the first column of Table 13, out-migration of household members since the implementation of the IADP is, however, not influenced by the migration experience of the head of household. The second column of the table shows that the recent out-migration of household members is affected by only a few of the exogenous variables. Farm households are less likely to have experienced out-migration, while initially large households are more likely to incur migration losses than small ones. Neither of these relationships is surprising nor unexpected. Where the household is not engaged in farming, family members may have to migrate for nonagricultural job opportunities. Agricultural employment aside, there is plainly greater Malthusian pressure on large households with relatively fixed incomes than on small ones. In addition, larger households simply contain larger pools of potential migrants.

What is striking is that Malacca households were less likely to have experienced recent out-migration than those in NST, the influence of the SITE variable is statistically significant as well beyond the 0.001 level. Whether this is due to the success of the IADP in Malacca or to the tradition of "merantau" in NST cannot be definitely ascertained. However, it is worth noting that the dummy variables for homeownership are not significant. This suggests that the impact of "merantau" may be negligible, since households clearly caught up on the matrilineal inheritance system are no more likely to have experienced out-migration than other households.

The analyses are repeated using a dummy variable OUTMIGR which takes on the value 1 if anyone in the household had migrated in the past three years and the value 0 if no one had migrated. The reason for studying this dummy variable is that doing so tends to attenuate the impact of household size on the number of out-migrants. In a large household, one migrant who takes or subsequently sends for his wife and children, can have a very substantial impact on household

size. This tends to make initial household size dominate the regression equation for number of migrants.

In Table 14, both farm occupation and household size remain significant in the equation for the dichotomous dependent variable. Their signs, as expected, remain the same as in the equation for the number of household out-migrants. However, some additional exogenous variables enter the equation as significant predictors. Chief among these are monthly household income and husband's age. Households with higher income levels are less likely to have experienced out-migration. Husband's age is positively associated with out-migration of household members. The older the respondents are, the more likely they are to have children who have reached maturity and migrate to establish their own households and careers. There is also a modest positive impact of farm land ownership on household out-migration. While this may seem puzzling at first, it must be remembered that the pursuit of farming as the primary economic activity has been controlled. Effectively, then, farmland ownership reflects the behavior of households that control farmland but do not engage in agriculture as their primary economic activity, if indeed they engage in it at all. Such households have less potential to provide work for its members who may then have to migrate.

In sum, examining households that have and have not experienced out-migration of members brings out some further factors in the migration experiences of households. The signs for these additional factors are in the expected directions. But in this equation, the strength of the SITE predictor, while still significant, is reduced in comparison to Table 13.

VI-2. Perception of Community Migration Flows

Table 15 shows that neither one's own migration experiences nor those of one's household members is likely to affect perceptions of community migration flows. Of the exogenous variables, only that denoting ownership of the home by the wife was a significant predictor. Those whose wives, rather than themselves, owned property were likely to feel that there had been greater out-than in-migration in the past three years.

Both models B and C in Table 15 strongly suggest the impact of

the IADP on perceptions of community migration flows. Even when all the migration and exogenous variables are included in the final equation, the significance of the SITE variable remains at well beyond the 0.001 level. Those in Malacca are much less likely to think that there had been greater out-migration than in-migration since the implementation of the IADP.

VI-3. Perceived Eagerness of Locals to Migrate

The results for Model A in Table 16 exhibit the impact of the migration variables on the COMMIGR indicator of the perceived eagerness of locals to migrate. The male head of household's own migration experiences have no impact upon his perception of changes in the eagerness of local residents to move; controlling for the exogenous variables does not change this picture, so that perceptions of community migration intentions are unrelated to one's own actual migration experiences. The number of household out-migrants appears as a significant predictor, but the sign is in the wrong direction. However, as expected, the perception that there had been greater outflows is positively and strongly related to the perception that people are more eager to move now than three years ago. In fact, this is the only predictor that remains significant when all the migration and exogenous variables are introduced in Model C.

Very few of the exogenous variables exhibit a consistent relationship with perceptions of increased eagerness to move among local residents. Homeownership does, however, have a clear impact upon perception of changes in the migration intentions of the community. Husbands who are house owners are less likely to feel people are more eager to move now than three years ago, while those whose wives are the homeowners are much more likely to feel local people are more eager to move now than three years ago. This result is wholly consistent with the "merantau" pattern in NST.

In Model B of the table, SITE emerges as a significant predictor at well beyond the 0.01 level. Malacca residents are much less likely than those in NST to regard local residents as more eager to move now than three years ago, a result entirely consonant with the view that the IADP had impeded migration and migration intentions. It should also be remembered that this result is obtained even after the inclu-

sion of variables (OWNERW and OWNERHW) to take care of the "merantau" tradition in NST. But adding the other migration variables in the full model reverses the sign of the relationship, even though the magnitude is not sufficient to reach significance. Thus, perceptions of change in the community's eagerness to move out was influenced by the IADP primarily in an indirect way, via the impact of the IADP on the perceived balance of migration flows (see Table 15).

VI-4. Migration Intentions

As can be seen in Model A of Table 17 , the migration intentions of the respondent are associated both with his own lifetime migration experiences and with those of other household members during the past three years. Those who have moved many times in the past are more likely to intend to move in the future, a result consonant with the mover-stayer model. However, those in households which have recently experienced out-migration are less likely to intend to move, a result which underscores the possibility that household resources are not necessarily depleted by out-migration. Introducing the exogenous control variables does not change the sign of either of these effects, but it does reduce the impact of both own and household migration experiences to an insignificant level. Migration intentions of the respondent are, however, not affected by perceptions of community mobility behavior.

Migration intentions are affected consistently by three of the exogenous variables. Respondents whose primary activity is in agriculture, as well as those with more schooling, are more likely to be planning a move. Those who own their homes are less likely to be planning migration, regardless of whether the husband or the wife is the home owner. There is nothing surprising about these results and they are in line with the results of many other studies of migration and migration plans.

When all the exogenous variables are in the equation, the results show that Malacca respondents are more likely to intend to move than those in NST. This occurs despite the presence of the "merantau" tradition in the latter site and suggests that the IADP could have stimulated rather than retarded migration by increasing awareness of nonagricultural opportunities.

VI-5. Migration Intentions for Children

Not surprisingly, those who feel that there had been greater out-migration from their community are more likely to have migration aspirations for their children. What is perhaps surprising in Table 18 is that the relationships with the other migration indicators are very weak. Among the exogenous control variables, only the SITE variable emerges as a significant predictor. Malacca respondents are less likely than those in NST in wanting their children to leave their current village. This result is consistent with the idea that the IADP retards migration, but it is confounded with the "merantau" tradition in NST which is imperfectly controlled for by including the variables reflecting husband's and wife's ownership of the home. The importance of the SITE variable also disappears once all the migration and exogenous variables are considered in the final model.

The financial position of the household is also associated with migration aspirations for children. Respondents who feel that their financial position has improved since the implementation of the IADP are more likely to have migration intentions for their children. At best, then, the analysis of migration intentions for children provides only limited support for the view that rural development retards migration.

VII. Summary and Discussion

In this paper, we have reviewed patterns of migration and intentions in the two survey sites. We have examined not only the gross differences between the two research sites, but adjusted the differences for a variety of control variables known to affect migration in other settings. The correlates of migration observed in the rural areas of these Malaysian states are largely consonant with previous research findings. However, the migration indicators utilized herein are themselves loosely related, so that somewhat different socioeconomic and demographic indicators affect different aspects of migration. Moreover, examining differences between the two sites is complicated by the "merantau" tradition in NST which can only be controlled imperfectly. In rural NST, the absence of the IADP is rein-

forced by cultural traditions.

There are no consistent patterns of differences in the migration variables between the two sites. This, in part, serves to remind us that rural development can both stimulate migration by bringing rural populations into the mainstream of the larger society and retard it by improving local conditions. To the extent that these forces, operating in opposite directions, also have impacts of similar magnitude, we cannot expect schemes such as the IADP to curb the influx of rural dwellers to urban centers. In the perception of changes in the mobility pattern of others and in the eagerness of others to move, Malacca respondents do exhibit a clearly lower level of migration propensity than those in rural NST. In actual household migration experiences, in one's own migration intentions and in migration aspirations for one's children, the two areas exhibit different rates. These differentials are sustained even after the simultaneous introduction of a variety of control variables. The results herein are, therefore, consistent with the view that the IADP influenced the process of migration decision-making, as well as actual migration flows.

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Table 1. Selected Key Development Indicators

Indicator	Malacca 1980	Malacca 1985	Negri Sembilan 1980	Negri Sembilan 1985
Per capita GDP $ (Malaysian dollars)	2,297	2,765	3,440	3,846
Ratio of per capita GDP to Malaysian average	0.71	0.74	1.07	1.02
Per capita GPD growth during 1981-1985 (% p.a.)	3.8		2.3	
Unemployment rate	6.4	8.3	5.5	7.5
Infant mortality rate (per 1,000 live births)	18.8	16.0	23.7	18.3
Acute care hospital beds (per 1,000 population)	2.0	1.9	2.8	2.9
Percent of population with piped water	76.5	84.4	72.8	79.6
Percent of population with electricity	54.2	70.9	68.7	91.6
Motorcars and motorcycles registered per 1,000 population	187	283	207	305
New land developed by FELDA (1000 ha.)	0.2		18.2	
No. of settlers (1000 persons)	-		4.5	
Idle land development (1000 ha.)				
Padi	-		0.4	
Non-padi	0.4		1.3	

Source: Fifth Malaysia Plan 1986-1990, p.170.

Table 2. Husband's Migration Experience

Number of moves since age 15	Total %	Malacca %	NST %
None	51.4	48.2	54.6
One	9.6	7.6	11.6
Two	20.6	27.7	13.5
Three or more	18.4	16.5	20.3
Total	100.0	100.0	100.0
No. of cases	506	253	253

Chi-square = 16.442**
** significant at the 0.01 level

Table 3. Households with Out-Migration in Past Three Years

No. of Out-migrants	Malacca		NST	
	Freq.	%	Freq.	%
No out-migrants	198	78.6	186	73.5
1 household member	32	12.7	21	8.3
2	10	4.0	19	7.5
3	5	2.0	14	5.5
4 or more	7	2.8	13	5.1
Total	252	100.0	253	100.0

Chi-square = 11.51*
* significant at the 0.05 level

Table 4. Main Reason for Recent Out-Migration Move of Household Members

Reason	Malacca		NST	
	Freq.	%	Freq.	%
Schooling	12	12.9	21	13.1
Job-related	49	52.7	117	73.1
Marriage-related	22	23.7	11	6.9
Other reasons	10	10.7	11	6.9
Total	93	100.0	160	100.0

Chi-square = 17.51***
*** significant at the 0.001 level

Table 5. Assessment of Community Changes in Migration Flows and Propensity to Move, Migration Intentions of Husband and Migration Intentions for Children

Subjective Migration Measures	Total %	Malacca %	NST %
Comparison of Migration in Past Three Years			
Migration into and out of the area			
More moved out	71.6	54.4	88.8
More moved in	11.9	21.8	2.0
Not sure	16.5	23.8	9.2
Total	100.00	100.0	100.0
No. of cases	497	248	249
Chi-square = 77.27***			
Propensity to Move Now Relative to Three Years Ago			
Change in Community			
More eager now	74.4	61.5	87.5
About the same	9.6	14.3	4.8
Less eager now	5.6	9.5	1.6
Not sure	10.4	14.7	6.0
Total	100.0	100.0	100.0
No. of cases	500	252	248
Chi-square = 45.90***			
Migration Intention of Husband			
Migration Intentions			
To move out	13.6	16.9	10.4
To stay	86.4	83.1	89.6
Total	100.0	100.0	100.0
No. of cases	500	249	251
Chi-square = 4.47*			
Desired Place of Residence for Children			
Residence for Children			
In this village	74.1	82.1	65.9
Other	25.9	17.9	34.1
Total	100.0	100.0	100.0
No. of cases	501	252	249
Chi-square = 17.30***			

*** significant at the 0.001 level
* significant at the 0.05 level

Table 6. Perception of Adequacy of Farm Land

	Malacca		NST	
	Freq.	Percent	Freq.	Percent
Adequate	58	54.2	122	76.2
Less than adequate	49	45.8	38	23.8
Total owning land	107	100.0	160	100.0
Total not owning land	143		93	
No information	3		..	
Total number of cases	253		253	

Table 7. Relationship between Migration Variables

Independent Variables	Dependent Variables									
	Percent Households with Migration Loss		Percent who think more moved out		Percent Who Think People More Eager to Move Now		Percent Who Intend to Move		Percent Who Want Children to Reside in Their Village	
	Malacca	Negri	Malacca	Negri	Malacca	Negri	Malacca	Negri	Malacca	Negri
Husband's Lifetime Moves										
None	25.9	26.9	48.7	86.5	58.6	87.3	9.5	10.3	86.2	62.7
One or Two	12.9	15.3	58.3	89.8	63.5	84.8	17.7	17.0	80.0	69.5
Three or More	22.5	36.2	56.4	91.5	62.5	91.5	35.0	6.4	72.5	70.2
Household Out-Migrants										
None	...	...	52.6	86.7	60.3	85.6	18.6	12.1	80.4	68.2
One or More	...	...	58.0	93.4	64.7	93.4	9.8	8.2	86.3	60.7
Migration Flows										
More moved out	...	...	...	...	96.2	96.1	17.7	9.7	76.9	64.2
Other	...	...	...	...	21.4	22.2	15.2	22.2	87.5	81.5
Propensity of People to Move										
More Eager	...	...	...	...	...	...	17.3	10.7	80.0	63.4
Other	...	...	...	...	...	...	15.8	13.8	84.2	86.2
Migration Intention										
Stay	...	...	...	...	...	...	...	...	82.8	67.8
Move	...	...	...	...	...	...	...	...	75.6	53.8
	Number of Cases									
Husband's Lifetime Moves										
None	116	126	116	126	116	126	116	126	116	126
One or Two	85	59	85	59	85	59	85	59	85	59
Three or More	40	47	40	47	40	47	40	47	40	47
Household Out-Migrants										
None	...	...	194	173	194	173	194	173	194	173
One or More	...	...	51	61	51	61	51	61	51	61
Migration Flows										
More moved out	...	...	...	...	135	221	135	221	135	221
Other	...	...	...	...	113	28	113	28	113	28
Propensity of People to Move										
More Eager	...	...	...	...	...	...	150	205	150	205
Other	...	...	...	...	...	...	95	29	95	29
Migration Intention										
Stay	...	...	...	...	...	...	...	...	204	208
Move	...	...	...	...	...	...	...	...	41	26

Table 8. Relationship of Migration Variables to Involvement in Agriculture, Ownership of Farm Land and Adequacy of Farm Land

Independent Variables	Dependent Variables									
	Percent Households with Migration Loss		Percent who think more moved out		Percent Who Think People More Eager to Move Now		Percent Who Intend to Move		Percent Who Want Children to Reside in Their Village	
	Malacca	Negri	Malacca	Negri	Malacca	Negri	Malacca	Negri	Malacca	Negri
Farm Occupation										
Yes	19.2	28.6	52.9	85.7	55.8	87.0	17.3	10.4	92.3	68.8
No	21.2	38.9	53.9	89.8	62.7	87.9	16.6	11.5	78.8	65.0
Own Farm Land										
Yes	32.1	30.6	53.3	94.4	62.3	92.4	14.2	9.0	84.9	63.2
No	12.2	18.9	54.0	78.9	60.4	80.0	18.7	14.4	79.1	71.1
Adequacy of Farm Land										
Adequate or Better	21.1	35.4	60.7	95.6	70.2	94.7	17.5	6.2	80.7	64.6
Less Than Adequate	46.8	36.7	44.7	85.3	55.3	82.4	8.5	14.7	89.4	58.8
	Number of Cases									
Farm Occupation										
Yes	52	77	52	77	52	77	52	77	52	77
No	193	157	193	157	193	157	193	157	193	157
Own Farm Land										
Yes	106	144	106	144	106	144	106	144	106	144
No	139	90	139	90	139	90	139	90	139	90
Adequacy of Farm Land										
Adequate or Better	57	113	57	113	57	113	57	113	57	113
Less Than Adequate	47	34	47	34	47	34	47	34	47	34

Table 9. Relationship of Migration Variables to Financial Position Compared to Three Years Ago and Monthly Household Income

Independent Variables	Dependent Variables									
	Percent Households with Migration Loss		Percent who think more moved out		Percent Who Think People More Eager to Move Now		Percent Who Intend to Move		Percent Who Want Children to Reside in Their Village	
	Malacca	Negri	Malacca	Negri	Malacca	Negri	Malacca	Negri	Malacca	Negri
Financial Position										
Better Off	15.6	29.2	46.1	91.7	57.8	93.1	17.8	12.5	80.0	54.2
About The Same	26.7	27.0	57.3	89.7	61.1	88.9	17.8	10.3	78.9	68.3
Worse Off	20.3	18.2	60.3	75.8	67.2	69.7	14.1	12.1	87.5	81.8
Household Income										
$500	18.2	29.2	57.8	91.7	65.4	90.8	19.1	13.3	73.6	63.3
$401-500	24.0	29.7	52.0	89.2	58.0	86.5	14.0	13.5	82.0	75.7
$301-400	19.2	17.1	54.4	87.8	66.0	85.4	14.9	4.9	87.2	78.1
$300	26.3	22.2	43.2	77.8	47.4	80.6	15.8	8.3	97.4	52.8
	Number of Cases									
Financial Position										
Better Off	90	72	90	72	90	72	90	72	90	72
About the Same	90	126	90	126	90	126	90	126	90	126
Worse Off	64	33	64	33	64	33	64	33	64	33
Household Income										
$500	110	120	110	120	110	120	110	120	110	120
$401-500	50	37	50	37	50	37	50	37	50	37
$301-400	47	41	47	41	47	41	47	41	47	41
$300	38	36	38	36	38	36	38	36	38	36

Table 10. Relationship of Migration Variables to Husband's Age, Husband's Years of Schooling and Household Size Three Years Ago

Independent Variables	Dependent Variables									
	Percent Households with Migration Loss		Percent who think more moved out		Percent Who Think People More Eager to Move Now		Percent Who Intend to Move		Percent Who Want Children to Reside in Their Village	
	Malacca	Negri	Malacca	Negri	Malacca	Negri	Malacca	Negri	Malacca	Negri
Husband's Age										
Less than 40	8.9	4.5	54.6	83.6	65.4	85.1	25.7	20.9	80.2	58.2
40-49	18.2	25.0	52.9	90.0	59.1	89.0	12.5	8.0	76.1	69.0
50 and over	46.4	50.8	53.6	90.8	57.1	87.7	7.1	6.2	92.9	69.2
Husband's Schooling										
Less than 6 Years	23.9	37.5	46.7	89.3	50.0	87.5	8.7	3.6	87.0	66.1
6 Years	27.0	19.8	54.6	85.2	60.4	83.2	11.7	9.9	84.7	69.3
7-10 Years	16.7	25.6	47.2	92.3	66.7	92.3	22.2	12.8	80.6	59.0
11 Years and over	7.8	16.0	62.0	92.0	70.6	92.0	31.4	32.0	72.6	56.0
Household Size										
Up to Five	3.0	6.2	59.1	90.1	66.7	88.9	21.2	14.8	83.3	69.1
Six or Seven	11.1	12.9	54.2	85.7	63.9	87.1	13.9	11.4	77.8	67.1
Eight or Nine	22.4	34.3	42.6	82.9	49.0	82.9	26.5	8.6	77.6	71.4
Ten or More	51.7	72.9	56.1	93.8	62.1	89.6	6.9	6.2	87.9	56.2
	Number of Cases									
Husband's Age										
Less than 40	101	67	101	67	101	67	101	67	101	67
40-49	88	100	88	100	88	100	88	100	88	100
50	56	65	56	65	56	65	56	65	56	65
Husband's Schooling										
Less than 6 Years	46	56	46	56	46	56	46	56	46	56
6 Years	111	101	111	101	111	101	111	101	111	101
7-10 Years	36	39	36	39	36	39	36	39	36	39
11 Years and over	51	25	51	25	51	25	51	25	51	25
Household Size										
Up to Five	66	81	66	81	66	81	66	81	66	81
Six or Seven	72	70	72	70	72	70	72	70	72	70
Eight or Nine	49	35	49	35	49	35	49	35	49	35
Ten or More	58	48	58	48	58	48	58	48	58	48

Table 11. Relationship of Migration Variables to Ownership of House

Independent Variables	Dependent Variables									
	Percent Households with Migration Loss		Percent who think more moved out		Percent Who Think People More Eager to Move Now		Percent Who Intend to Move		Percent Who Want Children to Reside in Their Village	
	Malacca	Negri	Malacca	Negri	Malacca	Negri	Malacca	Negri	Malacca	Negri
Owner of House										
Wife	31.6	31.0	79.0	94.4	78.9	91.2	10.5	4.5	89.5	63.4
Husband	23.0	34.0	45.5	89.6	53.4	88.5	6.8	3.8	81.0	72.9
Other	16.3	15.4	62.5	79.5	71.3	82.1	35.0	24.4	91.3	66.7
	Number of Cases									
Owner of House										
Wife	19	113	19	113	19	113	19	113	19	113
Husband	143	48	143	48	143	48	143	48	143	48
Other	80	78	80	78	80	78	80	78	80	78

Table 12. Description of Variables for Multivariate Analysis of Migration

LIFEMIGR	: actual number of lifetime migration moves after age 15.
NUMIGR	: actual number of out-migrants from household in past three years.
OUTMIGR	: household out-migration (1 if there had been out-migrants, 0 otherwise).
MIGRFLOW	: comparison of migration flows into and out of community in past three years (1 if more moved out, 0 if uncertain, -1 if more moved in).
COMMIGR	: perceived eagerness of locals to migrate compared to three years ago (1 if more eager to move now, 0 if do not know or about the same, -1 if less eager to move now).
MIGRINT	: migration intentions (1 if intend to move, 0 otherwise).
CHILDMIGR	: migration intentions for children (1 if do not want children to reside in current village, 0 otherwise).
OCCUPH	: main occupation of husband (1 if in agriculture, 0 otherwise).
OWNLAND	: ownership of farm land (1 if own land, 0 otherwise).
ADEQF	: adequacy of farm land (1 if land owned is less than adequate, 2 if land owned is adequate, 3 if land owned is more than adequate, 0 if do not own land).
INCOME	: total monthly household income.
COMFIN	: financial position of household compared to three years ago (1 if much worse off, 2 a little worse off, 3 about the same or uncertain, 4 a little better off, 5 much better off).
AGEH	: current age of husband in years.
EDH	: education of husband in years.
BHSIZE	: houssehold size three years ago.
OWNERW	: wife's home ownership (1 if house owned by wife, 0 otherwise).
OWNERH	: husband's home ownership (1 if house owned by husband, 0 otherwise).
OWNERHW	: sum of OWNERW and OWNERH.
SITE	: current place of residence (1 if Malacca, 0 otherwise).

Table 13. Regression Analysis of Number of Household Migrants in Past Three Years

Independent Variables	Model A Migration Variables Only	Model B All Exogenous Variables
Intercept	0.5391	-1.5709**
LIFEMIGR	0.0123	-0.0093
OCCUPH		-0.2423*
OWNLAND		0.0330
ADEQF		0.0643
INCOME		-0.00012
COMFIN		0.0816
AGEH		-0.0012
EDUCH		-0.0119
BHSIZE		0.3210**
OWNERW		0.0396
OWNERHW		-0.1352
SITE		-0.1344**
Number of cases:	498	472
Adjusted R^2:	-0.0018	0.4360

** coefficient more than twice its standard error
* significant at the 0.05 level with one-tail test

Table 14. Regression Analysis of Dummy Variable for Household Out-Migration

Independent Variables	Model A Migration Variables Only	Model B All Exogenous Variables
Intercept	0.2339**	-0.4025**
LIFEMIGR	0.0035	0.0020
OCCUPH		-0.0957**
OWNLAND		0.0933*
ADEQF		0.0164
INCOME		-0.00007**
COMFIN		0.0102
AGEH		0.0064**
EDUCH		-0.0074
BHSIZE		0.0628**
OWNERW		-0.0234
OWNERHW		-0.0332
SITE		-0.0628*
Number of cases:	498	472
Adjusted R^2:	-0.0018	0.2942

** coefficient more than twice its standard error
* significant at 0.05 level with one-tail test

Table 15. Regression Analysis of Perception of Community Migration Flows

Independent Variables	Model A Migration Variables Only	Model B All Exogenous Variables	Model C Migration and Exogenous Variables
Intercept	0.5482**	0.7059**	0.7380**
LIFEMIGR	0.0250	0.0280	0.0288
NUMIGR	0.0274	..	0.0212
OCCUPH		0.0660	0.0716
OWNLAND		0.0290	0.0309
ADEQF		0.0484	0.0455
INCOME		0.00005	0.00005
COMFIN		-0.0516	-0.0520
AGEH		0.0003	0.0008
EDUCH		0.0090	0.0092
BHSIZE		0.0055	-0.0047
OWNERW		0.2841**	0.2817**
OWNERHW		-0.1266+	-0.1196
SITE		-0.4123**	-0.4044**
Number of cases:	489	465	464
Adjusted R^2:	0.0033	0.1704	0.1693

** coefficient more than twice its standard error
+ significant at the 0.10 level with one-tail test

Table 16. Regression Analysis of Perceived Change in Eagerness of Local People to Migrate

Independent Variables	Model A Migration Variables Only	Model B All Exogenous Variables	Model C Migration and Exogenous Variables
Intercept	0.3491**	0.8194**	0.4822
LIFEMIGR	-0.0168	-0.0027	-0.0172
NUMIGR	-0.0343**	..	-0.0132
MIGRFLOW	0.5747**	..	0.5570**
OCCUPH		0.0381	0.0071
OWNLAND		-0.0166	-0.0325
ADEQF		0.0928*	0.0620
INCOME		0.00001	0.00002
COMFIN		-0.0142	-0.0148
AGEH		-0.0032	-0.0025
EDUCH		0.0140	0.0053
BHSIZE		-0.0028	-0.0161
OWNERW		0.2085**	0.0476
OWNERHW		-0.1396*	-0.0558
SITE		-0.2313**	0.0122
Number of cases:	488	467	463
Adjusted R^2:	0.3755	0.0831	0.3833

** coefficient more than twice its standard error
* significant at the 0.05 level with one-tail test

Table 17. Regression Analysis of Respondent's Migration Intentions

Independent Variables	Model A Migration Variables Only	Model B All Exogenous Variables	Model C Migration and Exogenous Variables
Intercept	0.1372**	0.1832+	0.2177+
LIFEMIGR	0.0221*	0.0131+	0.0121
NUMIGR	-0.0209*	..	-0.0064
MIGRFLOW	-0.0409	..	-0.0274
COMMIGR	0.0068	..	-0.0064
OCCUPH		0.0804**	0.0836*
OWNLAND		-0.0091	-0.0087
ADEQF		-0.0226	-0.0202
INCOME		0.00003	0.00002
COMFIN		-0.0028	-0.0097
AGEH		-0.0015	-0.0018
EDUCH		0.0184**	0.0197**
BHSIZE		-0.0026	-0.0016
OWNERW		0.0383	0.0535
OWNERHW		-0.2181**	-0.2280**
SITE		0.0574+	0.0356
No. of cases:	482	469	458
Adjusted R^2:	0.0174	0.1419	0.1409

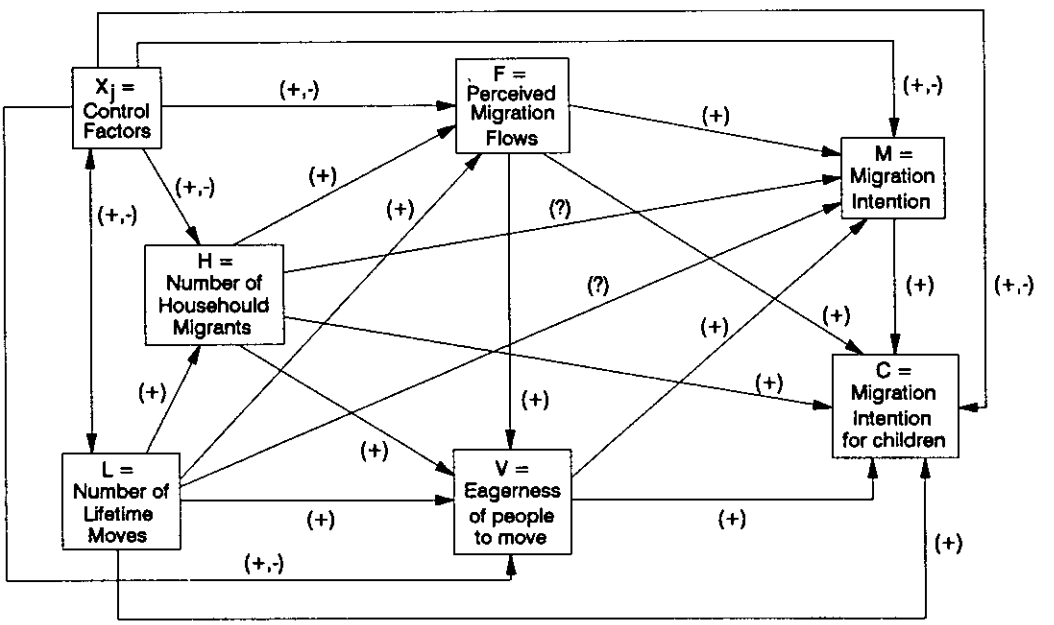
** coefficient more than twice its standard error
* significant at the 0.05 level with one-tail test
+ significant at the 0.10 level with one tail test

Table 18. Regression Analysis of Migration Intentions for Children

Independent Variables	Model A Migration Variables Only	Model B All Exogenous Variables	Model C Migration and Exogenous Variables
Intercept	0.1654**	0.2650+	0.1576
LIFEMIGR	0.0049	0.0009	-0.0003
NUMIGR	0.0113	..	-0.0029
MIGRFLOW	0.0648*	..	0.0249
COMMIGR	0.0463	..	0.0518
MIGRINT	0.0896	..	0.0745
OCCUPH		-0.0268	-0.0383
OWNLAND		-0.0169	-0.0030
ADEQF		0.0177	0.0105
INCOME		0.00002	0.00002
COMFIN		0.0430+	0.0494*
AGEH		-0.0036	-0.0046
EDUCH		0.0090	0.0062
BHSIZE		0.0026	0.0120
OWNERW		-0.0102	-0.0180
OWNERHW		0.0439	0.0516
SITE		-0.1949**	-0.1658
Number of cases:	479	470	455
Adjusted R^2:	0.0192	0.0448	0.0522

** coefficient more than twice its standard error
* significant at the 0.05 level with one-tail test
+ significant at the 0.10 level with one-tail test

Figure 1. Schematic Diagram of Causal Relations between Migration Variables



Definition of Variables

- X_j - various control variables
- L - number of migratory moves since age 15
- H - number of household members who moved in past three years
- F - comparison of migration flows into and out of community in past three years (1 if more moved out, 0 if uncertain, - 1 if more moved in)
- V - assessment of eagerness of people in community to move now relative to three years ago (1 if more eager to move now, 0 if do not know or about the same, -1 if less eager to move now)
- M - migration intentions of respondent (1 if intend to move, 0 otherwise)
- C - desired place of residence for children when they grow up (1 if do not want children to reside in village, 0 otherwise)

Signs

- \+ net positive impact
- +, - both positive and negative (for control variables)
- ? contradictory hypotheses available

Figure 2. Relationships of Social and Demographic Variables to Migration Variables

Socioeconomic Demographic Variables	Migration Variables				
	Household Out-Migration	Greater Migration Out	Local People more eager to move now	Intends to migrate	Intends children to move
Husband's age	++	0	-	--	-
Husband's schooling	-	0	++	++	+
Household size	++	0	(-)[a]	-	0

a : excluding upturn in households of size 10 or more.

++: relationship strong and positive.

+ : relationship weak and positive.

0 : relationship nil.

- : relationship weak and negative.

--: relationship strong and negative.