

Migration and Agricultural Production in Kanchanaburi, Thailand

Sureeporn Punpuing and Philip Guest

*Institute for Population and Social Research,
Mahidol University, THAILAND*

The Economic Consequences of Migration

The literature on the economic consequences of migration, especially for those left behind, exhibits considerable debate and confusion (see Bilborrow, 1998). Some of the confusion stems from inappropriate comparisons used in assessing consequences. The data available for analysis is typically cross-sectional and does not allow an examination of the delayed impact of migration on households. In this study we use longitudinal data to examine the impact of out-migration on agricultural production of households in origin areas.

Linkages that have been made between out-migration and changes in labour inputs of remaining household members, and out-migration from agricultural households has also been linked to changes in the types of agriculture that are engaged in by households (Singhanetra-Renard, 1992), or a shift from more intensive to less-intensive forms of agriculture (Makinwa-Adebusoye, 1993).

Out-migration can also change the models of agricultural production. For example, the out-migration of males in an area of shifting cultivation studied in Malaysia, reduced the length of fallow. This was a result of the unavailability of men to clear new areas for crops (Joeke et al., 1994).

Objectives

- (1) To investigate the effect of migration on the amount of land used in cultivation
- (2) To examine the effect of migration on the amount of household labour employed in agriculture

Data

Data from the Kanchanaburi Demographic Surveillance System (DSS) during 2000-2003 is used for this study. The Kanchanaburi DSS is operated by The Institute for Population and Social Research (IPSR), Mahidol University with the support from the Wellcome Trust, U.K.

Data limitation

- (1) Left censoring – no information on what had happened before 2000.
- (2) No follow-up in situations where all household members migrate.
- (3) Lack of household remittance data.

Definition

Agriculture households are defined as those households that in the year 2000-2003 used land for agricultural purposes. The land used could be owned, rented, or available free of charge.

Migration is defined as movement out of the village of residence for a period of at least one month.

Units of analysis

The unit of analysis is households, which the total is 4,955. There are four categories of households, which are:

- (1) No out-migration occurred in the three years,
- (2) Households where out-migration first occurred three years before the final census round in 2003,
- (3) Households where the first migration occurred two years before the final census round, and
- (4) Households where the first migration occurred the year before the final census round.

Dependent Variables

The main outcomes of interest in the analysis are:

- (1) The amount of land that households use for agricultural production;
- (2) The amount of agricultural land used for high labour intensive production (defined in terms of use of land for growing rice, and other annual or biannual crops);
- (3) The amount of land used for low labour intensive agriculture (defined in terms of animal husbandry and crops taking more than two years to mature), and;
- (4) The number of household members whose main occupation is in agriculture.



Results

Table 1: Percentage Distribution of Households by Out-Migration Status and Year

Migration Status	Year		
	2001	2002	2003
No out-migration	76.0	57.3	43.5
First out-migration in previous 1 year	24.0	18.7	13.9
First out-migration in previous 2 years	--	24.0	18.7
First out-migration in previous 3 years	--	--	24.0
Total	100.0	100.0	100.0
Number	4,955	4,955	4,955

Note: -- Migration data not available

Figure 1: Mean amount of land (in Acres) used by agricultural households for intensive forms of agriculture, by type of migrant household and year

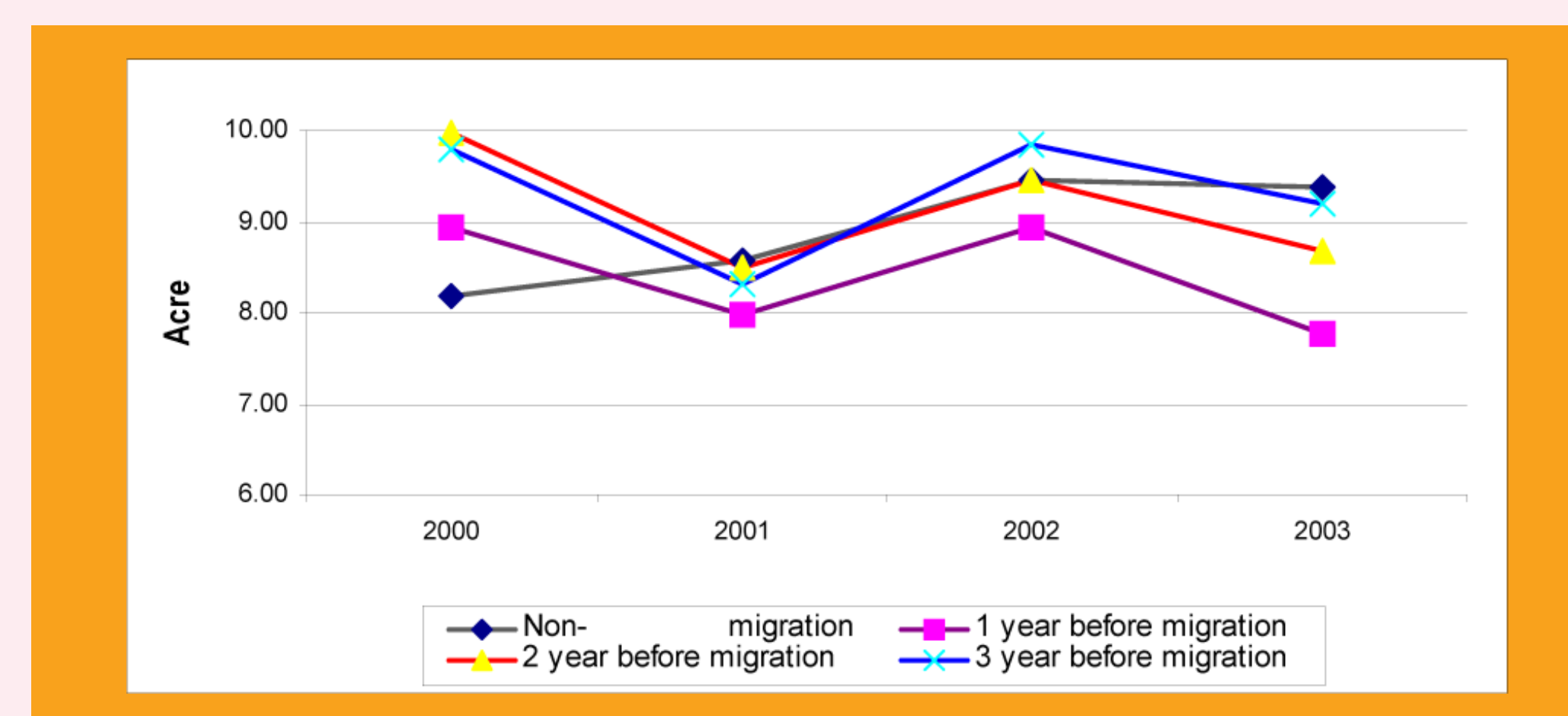


Figure 2: Mean amount of land (in Acres) used by agricultural households for less-intensive forms of agriculture, by type of migrant household and year

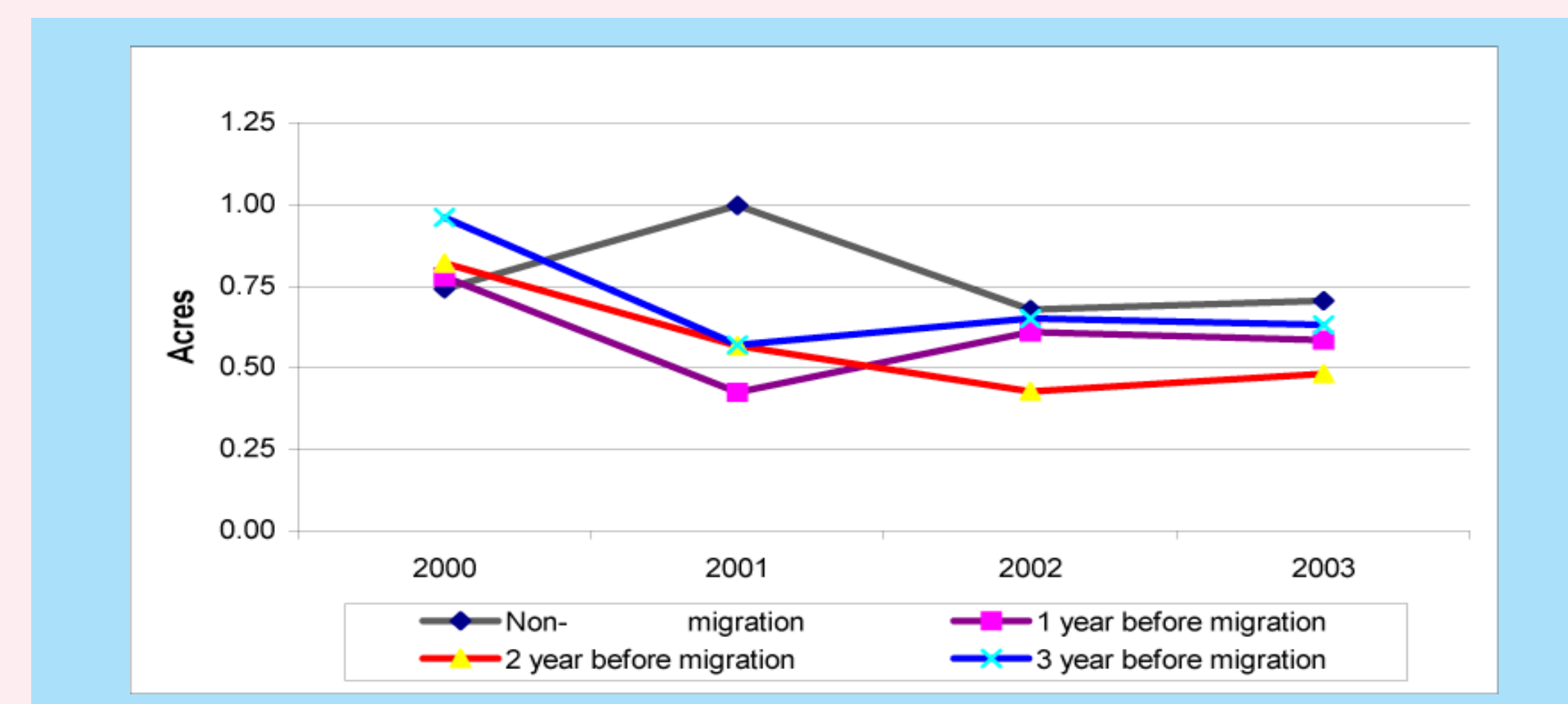


Table 2: Unstandardised ordinary least squares regression coefficients of models predicting amount of land used in agriculture and number of household members working in agriculture

Variable	Total Agricultural Land		Agricultural Land - Intensive		Agricultural Land - Non-Intensive		Number of Household members in Agriculture	
	1	2	1	2	1	2	1	2
No Migration (ref)								
Migrate 1 year before	-2.00	-2.71**	-1.84	-2.83**	-0.16	0.00	0.05	-0.18**
Migrate 2 years before	-0.72	-2.28*	-0.51	-2.29*	-0.21	-0.08	0.30**	-0.15**
Migrate 3 years before	-0.11	-1.84	0.60	-1.69	-0.17	-0.03	0.46**	-0.15**
Sex ratio 2000		-0.00		-0.00		0.00		-0.00**
Sex ratio 2003		0.00		0.01		-0.00		0.00**
Dependency ratio 2000		0.00		0.00		-0.00		0.00
Dependency ratio 2003		-0.00		-0.00		-0.00		-0.00**
Number HH members 2000		-0.17		-0.27		-0.06		-0.00
Number HH members 2003		0.30		0.25		0.05		0.07**
Number in-migrants 2000		-1.03		-1.42		0.46		0.12**
Number in-migrants 2003		0.32		0.49		-0.05		0.08**
Household wealth ² 2000		-0.11		-0.05		0.01		-0.03**
Household wealth 2003		0.50**		0.47**		0.05		-0.01
Household debt 2000		0.00**		-0.00		0.00**		0.00
Household debt 2003		0.00**		0.00**		-0.00**		0.00*
Male migrant 15-59 2003		1.14		1.51		-0.16		0.24**
Female migrant 15-59 2003		-0.49		-0.23		-0.12		0.40**
Land for agriculture 2000		0.88**						
Land intensive agriculture 2000				0.92**				
Land non-intensive agriculture 2000						0.25**		
HH members in agriculture 2000								0.59**
HH female members in agriculture 2000								-0.56**
HH female members in agriculture 2000								1.19**
Constant	10.53	-2.85	9.81	-3.02	0.72	0.19	1.76	0.10
N	4397	4397	4397	4397	4397	4397	4397	4397
R-square	0.001	0.504**	0.001	0.527**	0.000	0.122**	0.024**	0.685**

* - significant at .05 level; ** - significant at .01 level

Acknowledgement:

The data upon which this analysis is based was collected by the Institute for Population and Social Research, Mahidol University as part of the Kanchanaburi Demographic Surveillance System, which is funded primarily by the Wellcome Trust, United Kingdom, and is a member of the INDEPTH network since 2003.

Amount of agriculture land

- The effects of migration on amount of agriculture land are most marked in the one and two years immediately after migration. The effects are strong, with migrant households cultivating over 20 percent less land than non-migrant households.
- There are positive relationships with the household wealth and the total amount of household debt.

Intensive/Non-intensive agriculture land

- Households with migrants cultivate significantly less land in intensive agriculture than households with no migrants.
- Out-migration has no impact on the amount of land that is used for non-intensive cultivation.

Number of household member in agriculture

- Households with one or more members who had migrated before the survey employed more members in agriculture than households with no migrants.
- There are positive relationships between number of household members in agriculture in 2003 with those in 2000, and household female members
- There is a negative relationship between number of household members in agriculture and number of female engaged in agriculture.
- Higher labour force age in household are associated with lower number of household members working in agriculture.
- Households with higher living standards tend to have fewer household members working in agriculture.



Conclusions

- Out-migration is most likely to occur in households with more land.
- Out-migration subsequently results in a reduction in the amount of land used for agriculture. This reduction is confined largely to intensive agriculture.
- The effect is strongest in the period immediately following migration.
- Household with out-migrants have higher mean number of household members employed in agriculture. The differences are reduced immediately following migration but still remain.
- Households that lose labour of household members through migration adjust through an increase in the labour inputs into agriculture of household members.
- The effects are reduced considerably after socio-economic and demographic controls included.

The interplay between migration and household allocation decisions is complex and this paper has only scratched the surface of this relationship. The study suggests that households do face constraints in the amount of land that they can cultivate and the amount of labour they can use in agriculture immediately after the out-migration of household members.

However, households soon adjust to these constraints, drawing on existing household resources to substitute for the labour of household members who have migrated. There is no evidence to suggest that out-migration seriously impacts upon the agricultural production of household in this context.

Selected References:

- Bilborrow, Richard. 1998. The State of the Art and Overview of the Chapters. In *Migration, Urbanization and Development: New Directions and Issues*. UNFPA and Kluwer Academic Publishers, Norwell, Massachusetts; pp. 1-56.
- Joeke Susan, Noleen Heyzer, Ruth Oniang'o and Vania Salles. 1994. Gender, Environment and Population. *Development and Change*, Vol.25, pp. 137-165.
- Makinwa-Adebusoye Paulina. 1993. Labour Migration and Female-Headed Households. In *Women's Position and Demographic Change*, edited by Nora Ferichl, Karen Oppenheim Mason, and Solvi Sogner. Clarendon Press, Oxford; pp. 319-338.
- Singhanetra-Renard, Anchaee. 1992. The Mobilization and Labour Migrants in Thailand: Personal Links and Facilitating Networks. In *International Migration Systems: A Global Approach* edited by Mary Kriz, Lin Lean Lim and Hania Zlotnik. Clarendon Press, Oxford; pp. 190-204. ;

