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On the High Population Growth Rates of the Past in South Sumatra

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I Introduction

It is believed by some scholars that Java did experience rapid population growth in the last century, though the growth rates calculated from Dutch statistics available from the period are often looked upon as a considerable overestimation [Peper 1970; Widjojo 1970, etc.]. The rapid growth after 1830 is considered to be the result of a declining mortality rate due to improved communications and greater security, and of increased fertility due to the labor-tax pressures of the Culture System. Wet-paddy cultivation in the irrigated fields seems to have played an important role in supporting the increasing population [Geertz 1963]. Our genealogical data from South Sumatra show that rapid population growth also occurred there in the last 150 years. In this case, besides the peaceful situation present at the time, favorable land-population ratio, timely introduction of new cultivation systems, and less infection from malaria and additional severe illnesses, would have had a positive effect on the population growth.

Additional findings of high population growth, in the past in different regions of Southeast Asia might lead to discussion, or dispute, about the actual period of demographic transition in Asia, as well as the concept of demographic transition, itself. The evidence here, however, is for only two small kin-groups. Further collection and analysis of genealogies from different villages in South Sumatra and other provinces including Lampung and North Sumatra[1] will certainly contribute to the confirmation of these population trends of the past and offer an important clue to the historical demography of Southeast Asia, which has so far been studied very little.

II The Setting

The cradleland of the South Sumatran people was the mountainsides and the inter-mountain valleys. They came from the sea via the rivers to settle in those areas which had a favorable climate and healthy conditions. The peoples settling in those areas were Abungs and Mountain Malays. The former, who are supposed to have come to the area via the West Coast, spread to the regions of Lampung Province during the past several centuries [Funke 1958 & 1961]. One group of them went down the

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1) A similar type of genealogy chart is kept among the Batak villages in North Sumatra (Personal communication with Dr. J. Tamba).

Komering River, a branch of the Musi, to found their villages along the Komering in South Sumatra Province [Tsubouchi 1980]. The Malay settlements developed not only in the mountain areas but also along the Ogan, a branch of the Musi, and along the main course of the Musi. The process of Malay migration is, however, not well known and is further complicated because of their successive secondary migrations. It is worth mentioning here that there remained in the inland and the deltaic regions of South Sumatra abundant unutilized land which has only developed by Javanese and Buginese migrants in recent years.

The subsistence agriculture system for both the Abungs and the Malays in the traditional environment was swidden cultivation of dry paddies. Population increase stimulated the formation of new settlements in the frontier areas, maintaining the same cultivation system even on the river banks. With further increases in population, however, new cultivation systems were developed. In the mountain regions the swidden field, which had been traditionally laid fallow until it formed into secondary forest vegetation, was transformed into a permanent coffee estate after one or two harvests of rice, while the construction of permanent wet-paddy fields, either irrigated or rainfed, apparently increased at the foot of the mountains. In the regions along the rivers, the backswamps (*lebak*) were utilized. In contrast to the traditional swidden cultivation, in which dry paddies are cultivated during the rainy season, wet paddies are cultivated in the swamps when the flood waters recede in the dry season. The cutting of canals through the swamps made the cultivation area larger by providing easier drainage, easier transportation, and more space for housing lots along the canal banks. The dates for the start of *lebak* cultivation differ from village to village: more than 100 years ago for the earliest and less than 20 years ago for the latest. The dry land or the river bank, which had traditionally been used for swidden cultivation, was converted into rubber, cotton, or banana estates, a part of which has recently been further converted into orange orchards. In some regions it is possible to evaluate the effect of a monetary economy under the Dutch colonial system, which stimulated the introduction of cash crops, including rubber, along the river banks and pushed the paddy cultivation away to the *lebak* areas.

These situations suggest that land shortage was never an issue faced by the people to an extent that they felt the pressures resulting from an increase in population, except in a particular region where the *lebak* had been almost completely utilized for cultivation. It is also worth noting that accessibility to the field is easier for the villages on the river banks than for the traditional swidden cultivating villages on the mountains, and that the yield of two to three tons per hectare in the former is significantly higher than the one to one and a half tons in the latter.

III The Genealogy Charts

The people formerly lived in small cluster settlements, both in the mountain and in

the river bank regions. They can usually trace their genealogy to a common ancestor, who was the founder of the settlement. In some villages they kept a genealogy chart which contains theoretically all names of the descendants. A genealogy chart is not only a symbol to boast about one's blood relationship to the founder, who is sometimes associated with a royal family, but is also a map to locate and identify the kinsmen. It is believed that the Abung people inscribed (in their own ancient script which had its origin in Sanskrit) their genealogy on a tree bark or a plank. In some genealogy charts more than 20 generations are recorded. In these cases, however, only one or a few names are given for each generation of the earlier period, and all the names of the descendants appear after a certain person. In the 1950's, in South Sumatra, many genealogy charts appear to have been compiled in romanized Indonesian letters, a revision to the original fragments. Large population increases and urban drift since 1960, however, have made complete recording difficult.

During our survey on population growth and land use in South Sumatra,[2] we obtained four genealogy charts. Among them, two are from the Mountain Malays, one from a Daya-speaking people in the mountain valleys, and one from a Komering-speaking people in the mountain valleys, and one from a Komering-speaking people on the river bank of the Komering. The languages spoken by the last two groups are classified as Abung. These genealogy charts may be utilized to estimate the population growth in the past. It is fortunate, for demographic studies, that the charts do not omit intentionally the names of those who failed to have offspring. The native technique of genealogy construction, however, presented some difficulties for scientific use for the following reasons:

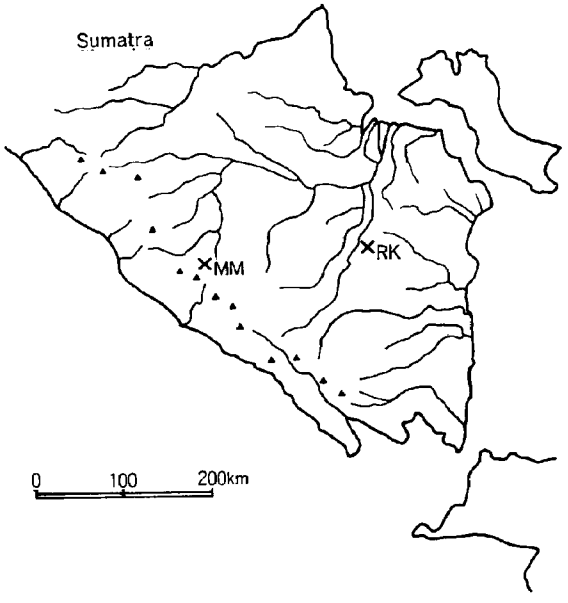


Fig. 1 Location of the Villages

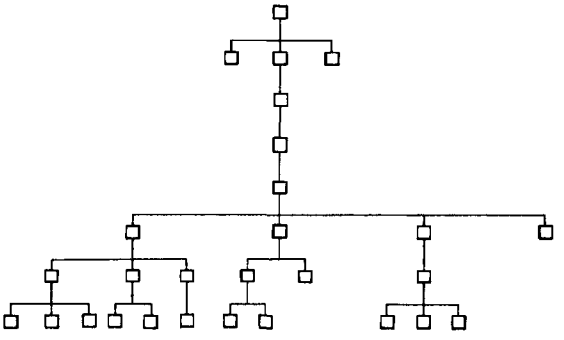


Fig. 2 A Model of Local Genealogy Construction

2) The research was sponsored by the Ministry of Education, Japan and LIPI, Indonesia, and was conducted in cooperation with the University of Sriwijaya, Palembang in 1978/79. The reports so far published appear in *Tonan Ajia Kenkyu* (Southeast Asian Studies), Vol. 17, No. 3 (special issue for South Sumatra, in Japanese) and Tsubouchi, Y. *et al.*, eds. 1980.

a. The spouse's name is never shown.
b. Names are shown without sex distinction. The dates of birth, marriage, and death are not recorded at all.
c. The genealogy is neither purely patrilineal nor purely matrilineal.
d. The spouse's name may disappear from the chart in case of intra-kin group marriage (to avoid a duplication of the children's names).
e. A person who died in infancy or even as late as pre-adulthood may not be recorded.
f. In case of polygyny, all children are treated as offspring of the father.

Though none of the genealogy charts showed pure unilineal characteristics, a patrilineal tendency was found among the people of Abung origin, while a matrifocal tendency, which accompanied a matrilocal residence, was strong among the Mountain Malays. Genealogical registration was, however, more reliable for the male line even among the latter because of the Islamic male dominance trait. Thus, better results would be obtained if the analysis was limited to the male line for the estimation of population growth in the past. Distinction of sex was made by the local informants for the names appearing in two genealogical charts: one from a Mountain Malay village (MM) and the other from a river bank Komering village (RK). It was thus possible to know, to some extent, the trends of population increase by counting the number of male children born to male parents. This ratio is close to a net male reproduction rate because of the omission of deaths during infancy and adolescence. Overestimation of reproduction caused by polygyny may be negligible because of the rareness of this type of marriage.

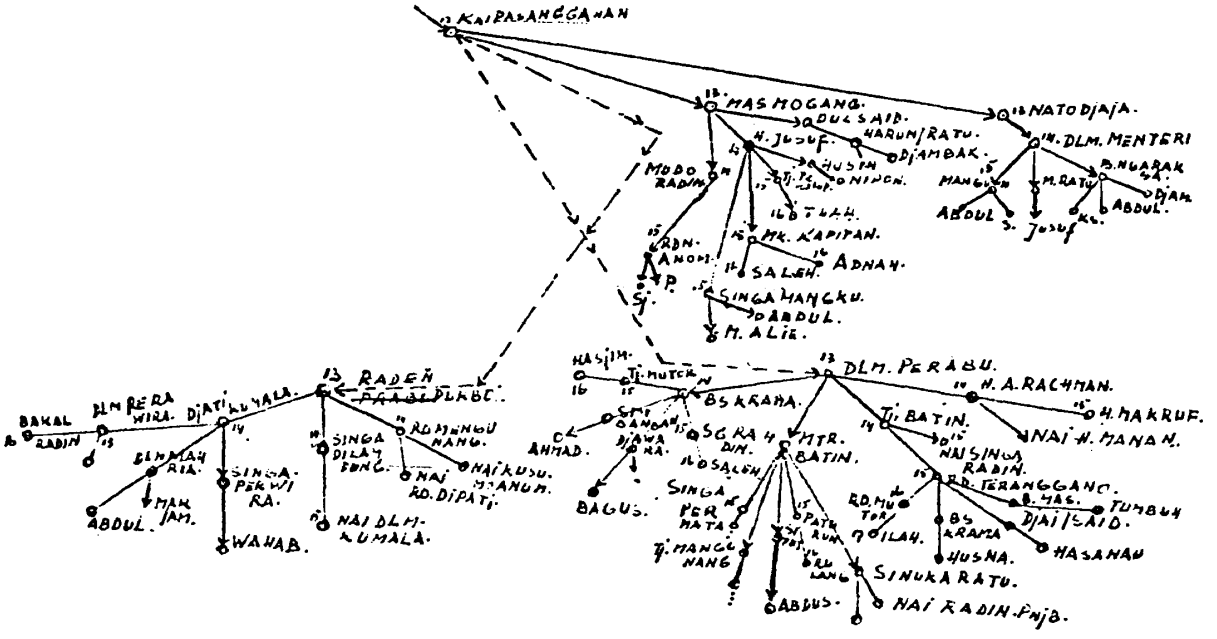


Fig. 3 A Part of the Local Genealogy Chart

IV The Data and Analysis

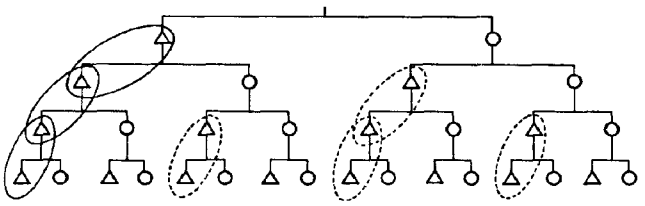
The people of MM claim that they are the descendants of a Mojapahit prince. Their genealogy chart covers 26 generations. A single name or several siblings' names are given for each generation in the first 16 generations only to show the affiliation to the ancestors. Demographically meaningful data was found after Pasak Rorah of the seventh generation, the founder of the village. The compilation of the chart was completed during the 1950's by one of the educated descendants. Those who were born later are not included. The people who belong to the twenty-seventh generation and later are not included in the chart even if some of them are older than some people in the preceding generation. This omission was made perhaps to keep the neatness of the description. This causes the relatively old age distribution of the last generation in the chart, although it does not assure the completeness of the births in this generation.

The people of RK keep a genealogical chart containing 17 generations beginning from Kai Andangah. The present chart was compiled in 1957 by the elder villagers. Only one name is given for each generation from the first to the seventh. All of these ancestors are male except the third, Nai Temenggung Montik, who was married to a migrant prince, Temenggung Montik, the son of Sultan Hamin of Cirebon, who brought royal blood into this kin group. The order of these ancestors was at issue with some of the elders, which implied some obscurity. The eighth ancestor, Patih Sangserahnjawa, is the direct ancestor of this kin group. Unlike the case of MM, the record did not omit the last generations. Thus, the number of the offspring in these generations must be considered incomplete.

A fictional affiliation through adoption in these genealogy charts seems unlikely. Urban migrants to Palembang and Jakarta were included in the charts, and the possi-

Table 1 Number of Population in the Genealogy Charts

RK						MM					
Generation	Male	Female	Unknown	Total	% of Female	Generation	Male	Female	Unknown	Total	% of Female
						17	1	0	0	1	0
						18	3	0	0	3	0
8	1	0	0	1	0	19	5	1	0	6	16.7
9	4	0	0	4	0	20	3	0	0	3	0
10	12	0	0	12	0	21	8	0	0	8	0
11	18	3	2	23	13.0	22	10	3	0	13	23.1
12	35	11	0	46	23.9	23	20	9	0	29	31.0
13	77	26	0	103	25.2	24	39	19	0	58	32.8
14	121	30	3	154	19.5	25	74	62	0	136	45.6
15	130	40	1	171	23.4	26	166	110	0	276	39.9
16	119	28	2	149	18.8						
17	18	6	0	24	25.0						



Father-son relation counted by method 1

Father-son relation additionally counted by method 2

Fig. 4 Illustration of the Two Methods of Counting So/Fa Ratio

bility of missing them was very low in the case of people who were grown up by 1950's. The population in the genealogical charts is shown by generation and sex in Table 1. Under-registration of the female population is found not only in RK but also in MM, which explains the omission of the female population from the analysis.

It is possible to analyse the population growth by two slightly different methods as follows (also see Fig. 4):

Method 1. Complete male line method —by counting the number of males for each generation in the revised genealogy chart, which is made up only of the

Table 2 Number of Males in Each Generation Counted by Methods 1 and 2, and So/Fa Ratio in Each Pair of Generations

RK					MM				
Generation	Method 1		Method 2		Generation	Method 1		Method 2	
	No. of Males	So/Fa Ratio	So/Fa	So/Fa Ratio		No. of Males	So/Fa Ratio	So/Fa	So/Fa Ratio
					17	1			
							—	3/1	—
					18	3			
							—	5/3	—
8	1				19	5			
		—	4/1	—			—	3/5	—
9	4				20	3			
		3.00	12/4	3.00			2.67	8/3	2.67
10	12				21	8			
		1.50	18/12	1.50			1.25	10/8	1.25
11	18				22	10			
		1.67	30/18	1.67			1.50	15/10	1.50
12	30				23	15			
		1.90	63/35	1.80			1.13	28/20	1.40
13	57				24	17			
		1.46	103/77	1.34			1.24	54/39	1.38
14	83				25	21			
		1.06	121/114	1.06			1.33	84/74	1.14
15*	88				26*	28			
		0.91	101/130	0.78					
16**	80								
		0.19	18/119	0.15					
17**	15								

* Incomplete
** Very incomplete

Table 3 Average Rate of Annual Population Growth Calculated in Different Methods

So/Fa Ratio Used for Calculation	RK (9th to 14th Generation) Supposed Length of One Generation			MM (20th to 25th Generation) Supposed Length of One Generation		
	25 yrs	30 yrs	35 yrs	25 yrs	30 yrs	35 yrs
Method 1, Arithmetic Mean	2.61%	2.17%	1.86%	1.79%	1.49%	1.27%
Method 2, Arithmetic Mean	2.52	2.09	1.79	2.00	1.66	1.42
Method 1, Geometric Mean	2.46	2.05	1.75	1.57	1.31	1.12
Method 2, Geometric Mean	2.34	1.95	1.67	1.83	1.52	1.30

males connected through the male lines.

Method 2. Paired father-sons method—by counting the number of males, who are connected by father-son relationship, for each set of neighboring generations.

The advantage of the first method is that it shows the total features of the population growth by itself, while the disadvantage is the smallness of the available number of people in the genealogy chart. It is possible to obtain a larger number of people by utilizing method 2, in which a comparison is possible only by calculating father-son ratios for each set of neighboring generations.

The So/Fa ratios calculated by methods 1 and 2 for each set of generations are shown in Table 2. The population grew in RK as rapid as 1.34–3.00 times for each generation during five generations preceding the 15th. Though the growth was somewhat slower than in RK, the population increased in MM at the rate of 1.13 to 2.67 times per generation in a comparable period.

Assuming that the So/Fa ratio represents the male net reproduction rate and that one generation or average year of childbearing is either 25, 30, or 35 years, it is possible to estimate the average annual growth rates for five generations or 125–175 years before 1960. The rates calculated in various ways are shown in Table 3.

Table 4 Number of Patrilineal Descendants from Four Brothers of the 9th Generation, RK, and Six Brothers of the 21st Generation, MM, by Generation

RK Bro. of the 9th Generation					MM Bro. of the 21st Generation						
Generation	A	B	C	D	Generation	a	b	c	d	e	f
10	4	1	5	2							
11	6	1	8	3	22	1	3	1	3	1	1
12	9	1	15	5	23	1	10	2	0	1	1
13	14	1	37	7	24	1	10	3	0	1	2
14	28	1	43	11	25	0	10	8	0	2	1
15	43	1	37	7	26	0	18	6	0	3	1
16	60	5	14	1							
17	15	0	0	0							

Table 5 Percent of Males Who Failed to Have a Male Succesor

RK			MM		
Generation	Those without Son/Total Males	Percent	Generation	Those without Son/Total Males	Percent
10	2/12	16.7	21	2/8	25.0
11	5/18	27.8 (22.5)	22	3/10	30.0 (31.2)
12	9/35	25.7	23	5/20	25.0
13	16/77	20.8	24	14/39	35.9
14*	60/121	49.6	25*	24/74	32.4
15**	68/130	52.3			
16**	107/119	89.9			

* Incomplete
** Very incomplete

The rates for RK range between 1.67 percent and 2.61 percent, while the rates for MM range between 1.12 percent and 2.00 percent. If the geometric means represent the best figures offsetting the irregularly high increase rates between the earliest two generations, and if the best estimate of one generation is 30 years, then the average rate from the two methods is 2.00 percent for RK and 1.41 percent for MM.[3)]

The accelerated population growth of RK is not attributed to the high growth rate of a particular sub-descent group. The number of patrilineal descendants from each of the four brothers in the ninth generation of RK and those from each of the six brothers in the twenty-first generation of MM are shown by generation in Table 4. It is clear that more than one sub-descent group contributed to the population growth.

Probability of male line extinction was measured by the ratio of the males without sons to the total males of the same generation. The result is shown in Table 5. Higher probability of extinction, which corresponds to the lower growth rate, is found in MM.

3) To calculate the growth rate for each generation intervals, however, does not produce useful estimates of the periodical growth rate because of the dispersed age-distribution in the descending generations.

V Final Remarks

The population of Mainland Southeast Asia in the past was considered anomalously sparse in contrast to the dense population found in India and China. The same thing could be said about insular Southeast Asia with the exception of Java. The fact may be related to low food-productivity and incessant warfare between tribal groups or small states [Zelinsky 1950]. The effect of crisis mortality should also be taken into account [Smith 1978]. The establishment of peace either under the sultanate or Dutch colonial control, the introduction of new technology into food production, and the fortunate isolation from coastally prevalent epidemics may have played a positive role in the remarkable population increase in our sample villages. Further questions may arise: (1) When was this favorable situation attained? (2) To what

extent are the similar situations found in other regions? We have no data to answer these questions and can only look for future collection of more material to help us answer these. At this moment, a possible diversity of demographic experience in the past, in Southeast Asia, is suggested.

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