

Fertility Transitions of Four Chinese Populations Under Different Birth Planning Programs*

By

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THE PROBLEM

By 1980, mainland China reported a population of 983 million on the mainland, accounting for twenty-two percent of the world population. There were eighteen million Chinese residing in the province of Taiwan, and about five more million in Hong Kong. Of the 2.4 million Singaporeans, seventy-six percent were ethnically Chinese. The economic prosperity of Singapore, Hong Kong and Taiwan has been established facts that people began seeking descriptions and explanations for the phenomena. And demography is undoubtedly one important aspect of all the changes.

Similar to the experiences of Western countries where the road to modernization was parallel to the rapid demographic transition in the four Chinese populations that characterizes their paths of development: In 1980 their fertility transitions from the traditional plateau to the new level in balance with the prevalent low mortality are perhaps one of the most striking phenomena that post-World-War-II years has witnessed, showing a remarkable effort of seeking the basic conditions under which a nation can survive and prosper in modern times.

The Chinese Singaporeans and the Chinese in Hong Kong constitute a number of seven million. Even combining with Taiwan's 18 millions, they could only amount 25 million. Although this is a magnitude larger than many countries of medium-size, it forms only a ratio of 2.5 percent of the population size on mainland China. Any discussion on Chinese populations must deal with the people on the mainland. This is not merely because of its gigantic size but especially because of its rare features that characterize its unique model of fertility tran-

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sition. The experiences of almost a billion Chinese mainlanders will naturally be the major target of study. On the other hand, the achievements in fertility control made by Chinese in Taiwan, Hong Kong and Singapore provide good examples that also add fresh knowledge and experiences which may be useful references to other countries groping for ways to combat natural increase. If the mainlanders' way of demographic transition is one of unprecedented revolutionary model, then the islanders' models are ones of evolution which are a continuation and development of the model originated in the Western countries. In all, in the past twenty years, the Chinese, from the islanders to the mainlanders, have ingeniously enriched demography with a wide range of successful models of population transition. But the four Chinese populations have become extremely divergent congregations forming a situation so weird and rare that no similar replication of an ethnic group of the same culture could be found elsewhere. The social conditions in which they now live vary widely, the goals they pursue differ and values they stick to are heterogeneous. Politic-economic-social structures of mainland China and the other areas differ as widely as Taiwan Strait. And formal philosophy and life outlook become as incompatible as the geographic partitions. But all except geography has only a history of thirty years, which could not erase the fact that they are all Han people, share the same historical heritage and cultural tradition, read the same square characters and speak Mandarin or other Chinese dialects.

Strange enough, all these widely ranging differences did not prevent the Chinese, wherever they are, from meeting with and resolving the common population problems hanging over them for ages. They only diversify approaches to solving the problems. The Chinese have been well known for their pronatal traditions, and they are now additionally constrained by the specific circumstances under which they live. Yet all have been trying for an outlet to make use of their existing conditions in ways compatible to their basic social structure and philosophy. We shall soon show that the problem is historical and common to all Chinese, the pressure is heavy and, although conditions vary widely, the Chinese, irrespective of incompatibility of political ideology and economic system, are simultaneously harmonized in the historical demand of transforming the vital process. This is a rare phenomenon compounded with contextual complications. We seek to explore on this change is synchronized under widely different situations and investigate the processes through which the Chinese transform their fertility be-

havior.

HISTORICAL RETROSPECT

Two thousand years of Chinese records and archives seem to indicate that China's population before 17th Century oscillated, sometimes radically, around 50-60 million. Population density had hardly exceeded 10 persons per square kilometer, and was usually around 5 persons. The size of the Chinese swayed roughly in line with the rise and fall of a dynasty which reigned in 2-3 hundred years. Population increases sometimes sped pretty fast, at the initial stage of cycle, but such growth rarely exceeded the approximate maximum magnitude of 80 million, could at most last over couple of hundreds of years, and was usually ended with population decline, sometimes so drastical that a third, a half or ever over 85 percent of the original maximum population were decimated in a short span of time¹. Although one should always be wary of demographic data of long years past, Chinese experiences do not warrant it imprudent to state that Chinese historical population increase before Ch'ing Dynasty hardly ever posted problems so serious that it demanded secular adjustment of fertility. The reason is found in the simple fact that the Chinese had hardly accumulated experiences enough (in such major aspects of life as economics and medicine) as to keep mortality at a level to allow secular natural increases.

But since mid-17th century when the Ch'ing Dynasty was just established, mortality situation made a definite change that population has kept incessantly growing over a historical period of unprecedented length. The Ch'ing Dynasty lasted 267 years. Yet the cyclical movement of population size failed, for the first time in Chinese history to associate itself with the crumb of the Dynasty. Ch'ing Dynasty was the only one that lived up to the perpetual ideal of "numerous descendants" of Chinese feudal society. It was the first Dynasty that brought the population above 100 million. By 1840, there were at least 400 million Chinese, 6-8 times the traditional level over only two hundred years before. What is ironical is, by realizing the traditional ideal, not only the Ch'ing Dynasty was wiped out, but the imperial feudal dynasty system of some 2000 years' repetition was brought to an end forever. The salient fact is all previous dynasties collapsed with the decline of population, yet the Ch'ing Dynasty was excepted from this invariable association of historical cycle. This does not mean that the Ch'ing Dynasty had been less severely pounded by the traditional disturbances than any previous regimes. On the contrary, the last Dynasty had undergone the worst destruction the Chinese history

has ever endured. The Ch'ing Monarchy, being a minority rule, had not only been challenged severely by internal rebels, but especially threatened by aggressions from external modern international imperialism. During the 109 years from the Opium War to the founding of the regime of People's Republic, repeated imperialist invasions in national scale sometimes coupled with frequent civil wars, famines went concomitant with pestilences and endemics. Yet the Chinese population grew so immense that total natural increases could be more compensative than losses caused by regional famines, pestilences and casualties of wars of unprecedented scale. The population size did not shrink. By 1949, China recorded a population of 540 million which was 30 percent higher than over a hundred years before. The size was about 10 times the population level of the historical equilibrium. In other words, natural increases within three hundred years from 1650-1949, was almost ten times greater than the total increases of thousands of years' accumulation before the mid-17th century. To make matter more imminent, the establishment of the Chinese socialist regime assumed national independence and concluded the long years' of chaos, schism and political instability and inability, put fresh impetus for population growth and made way for natural increases at never so fast a pace with a resultant growth of unimaginable scale. In thirty years since 1949, China added a population of 440 million to its magnitude in the late forties. The population in 1980 was almost twenty-fold of the size in the mid-17th century.

The annual increases of the long historical period before 1650 could hardly exceed a score of thousands. But in the three hundred years from 1650-1949, it averaged an annual natural increase of 1.6 million, which is 80-100 times greater than the yearly increases before 1650. Since 1949, average natural increases went to 14 million a year. In the 1960s', natural increases in some years went as high as 22 millions, and even in 1980 when birth rate had been cut in half, over its 1970 level, the annual increases still amounted to about 10 million. An increase of 14-22 million would usually take ancient China at least 700 to 1000 years to multiply, but now it was done in one single year. Recent progress has enhanced China's growth potential to an incredible capacity. This is a fact created by man's ability to cut mortality. Consequently, as the base number of population size grows into an astronomical size, population, even compounded at a very small rate, would result in an annual increases so large that it would take hundreds of years to accumulate in ancient China. Today population density went to 105 persons per square kilometer, 20 times higher than what usually was three hundred and thirty years ago. The accelerating momentum has been a vexing problem that many Chinese from em-

perors of Ch'ing Dynasty to staunch communists rulers of modern times, both the feudal and communist rulers are well known of their pronatalist doctrines, could not but seek ways to deal with it.² The problem of growth has long been shadowing the Chinese future that Hung Liangchih (1746-1890) expounded his theory on the relation between population and food supply and put forward the concept of over population (1973) five years before Malthus did. In late 19th century, Wang Shituo³ explored ingeniously population problems in great length, and advocated severe measures to combat natural increase. He was the first Chinese to put forward the ideas of contraception and one child per family. Yet the problem could not be resolved until minimum necessary conditions are provided for an effective control over population. But the Chinese had all shared the pressure of population growth for over three hundred years. This experience, common to all Chinese, should have created a basic circumstance conditioning their mentality.

Demographically and historically, the family-centered feudal society of small land-holding was built on the inherent premise that fertility and mortality were eventually balanced, at a high plateau of the two forces of course. But the desire for longevity is innate to human race and deliberate effort has always been made to prolong life, yet feudal reproductive institution stabilized fertility, while mortality was a mobile active variable sensible to changes of conditions and subject to constant watch of the people, fertility fell into a state of inertia, lagging behind mortality in sensibility and changeability. Then the population cycle of a length of 200-300 years evidenced in about two thousand years from Ch'in Dynasty to early Ch'ing Dynasty (from about 250 B.C.-1650 A.D.) was mainly caused by fluctuations of mortality. But bits of achievements accumulated in hundreds even thousands of years' effort of Chinese medicine and other related matters eventually turned out apparent results and the Chinese since 17th century not only brought down mortality but also able to keep its fluctuations at a certain lower level to allow long years' natural increase. Thus was created an instance: rapid population growth over longer period of time broke the historical cycle of population movement without substantial institutional change. This was an experience quite different from that of the Western countries where institutional changes, which paved the way for fertility transition, preceded or at least went concomitant with the decline of mortality. In the mid-17th century, populations of European origin were perhaps twice the size of the Chinese. By 1950, the Chinese were 70 percent of the Europeans. This was a period of great swelling for the Europeans with fundamental changes of institution, technological advances and spatial expansions.

Yet their growth was perhaps 40 percent slower than the Chinese. The pressure on Chinese for change was aggregating, the need for transforming reproductive behavior was great yet conditions for the adjustment were not prepared until after 1949.

INSTITUTIONAL CHANGE

One major barrier may be traced in the traditional family. The feudal family was so organized as to take care of a person's life from cradle to grave. All major activities of life were carried out in the collective effort within the family. Family members worked for the family and the family looked after them. The family was made sacred and considered as an independent entity of the society that all its members must be subordinate to it. The family assumed the economic function above individuals as an independent unit of production, for self-sufficiency under small land holding condition, and high fertility was always preferable and was so fit into the system against the uncertainty of high mortality. But this was possible only when the inherent premise of equilibrium of vital process was more or less maintained. Now that mortality decline tilted population movement out of the traditional orbit, the family was no longer able to provide room enough for life to recycle at the traditional model. The preference over high fertility and the inability to meet with the consumptive demand were evidenced by a well versed saying: More people make a job light, but less people make a dinner more pleasant. As population grew up to ten times greater than the traditional equilibrium level, the family produced more labor force than it could find use on the one hand, yet tradition made it mandate that its members should not digress from the old track on the object under fire especially by young educated people prior to 1949. In a word, the feudal family system subjugated individuals, and traditional family collectivism stifled individual aspiration. To reform fertility one must first reform the family. And the mainlanders' way of changing the family was to differentiate it from its traditional function as an independent unit of production. Since 1953, production began to be socialized through various rapid processes of collectivization (1956) and communization (1958). Family has been deprived of its function as an independent unit of production⁴, and thus was removed the basic condition motivating high fertility.

Although nationalization and collectivization of economy on mainland China was not at all consciously aimed at transforming fertility, it nevertheless turned out to have born immense impact on reproductive behavior. The most important effect of this economic socialization on reproduction is that it provided conditions

to channel fertility change so different from other areas and decided that China's fertility transition should also be through a collective socialized model. As socialization of national economy created a powerful organization, this organizational ability is also mobilized to implement the organized transition of fertility by means of a tight plan⁵ in 1971 when fertility transition was declared a major target of government work.

As much as the communist rule on the mainland decided its way to control birth, so did the Republic of China in Taiwan decide its mode to cut fertility. Taiwan's formulation of the pattern for fertility transition also found its cause in the basic character of its social system. The Taiwanese society was essentially Chinese in spite of over fifty years' Japanese occupation. It was basically a landlord economy of small peasant land holdings before 1940s. But it was then much more developed than the mainland. The rural was within easy reach, and communication was much better than the countryside across the strait. Taiwan area had been in the process of urbanization and the economy was much commercialized, whereas that of the peasants on the mainland was one of self-sufficiency and urbanization crawled. But basic institutional transition up to this day is always associated with and even precedes modern fertility transition. It was so in the Western countries, and it was also evidenced in the Far East. Although Japan had been quite capitalized before World War II, its land reform was not carried out until after the downfall of the imperialist regime and hence sped up its birth decline. South Korea where fertility is in transition had also experienced a land reform after its independence. The Chinese land reform on the mainland was brought about by a bitter revolution of many years' armed revolt. If land reform was capitalism in nature, this episode of similar experience from the West to the East seems to indicate that feudalist way of life is either impossible to stage an organized model of fertility transformation like what is being done in mainland China, or incapable to evolve necessary conditions for an evolutionary model to modernize reproductive behavior like what happened in the West. Although this issue of the impact of institutional change on fertility transition is hardly explored, to any length, it seems straight forward that when the majority of population were bound to land by feudal tenancy, they were either sheer slaves or not much better of than creature in serfdom. It is out of the question to expect them to consider such sophisticated problems as the adjustment of fertility behavior. Therefore, land reform could be listed as the major requirement preconditioning fertility transition.

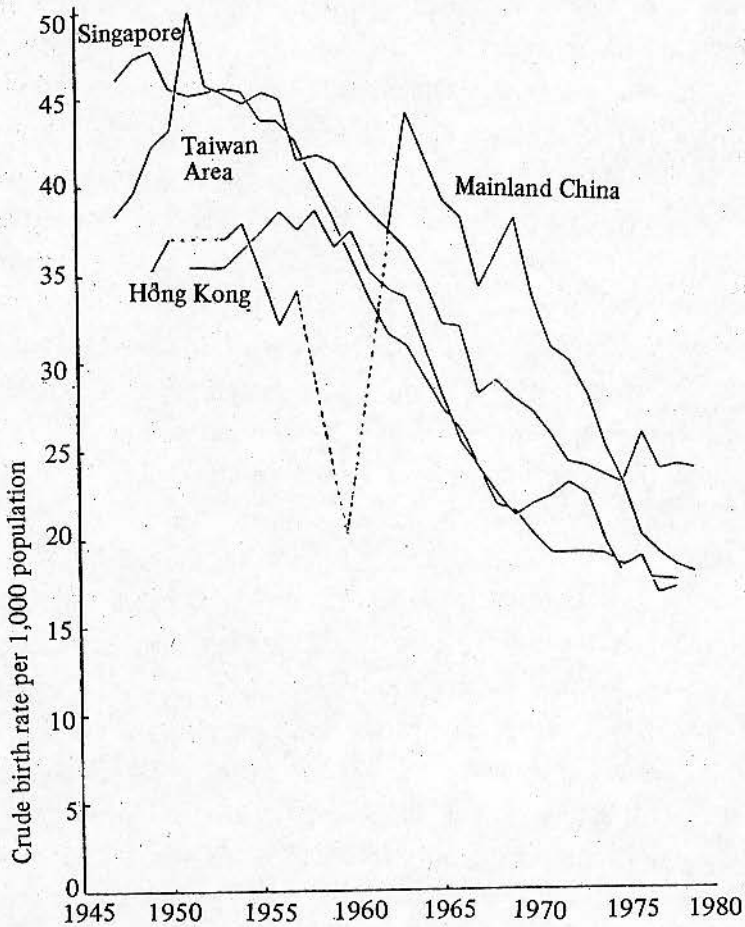
Land reform creates a condition that not only stimulates the former peasants'

interests in economic activities but especially rids them of the bondage of slavery and thus raises them to the status in mastery of their own fate. Political independence and economic stipulation usher them to plan for their own future and make it possible for them to study the relation between their welfare and fertility. In this respect, the Chinese in Taiwan area share the same experience as those on the mainland, which may even be comparable to experiences in South Korea or Japan. But land reform on the mainland was only ephemeral, lasted less than seven years and was soon passed on to collectivisation which led the society to a stronger reliance on organizational forces, whereas in Taiwan area, as in Japan and South Korea, land reform, carried out in the late 1940s, became the basis of life which led to their choice of model of fertility transition entirely different from that on the Mainland but more similar to the original Western model. The Chinese mainlanders' organized model of transforming fertility behavior is revolutionary, while the Taiwanese model of family planning is evolutionary by adapting the precedent model of the West to a Chinese society.

This was natural, for the socialist transformation on the mainland liquidated private ownership, changed the nature of relationship between government and people as well as among themselves and turned everybody on the equal footing as a wage (in the urban) or work-point (in the rural) earner, whereas in Taiwan private ownership is the basis of life. Public ownership compels concentrated organization especially in mainland China where capitalism was skipped but private ownership necessitates dispersed decentralization. The former simplifies matters and homogenizes people from all walks of life. It therefore stresses the common lot of the society and is capable of drastical measures which could drive fast movement for social changes whereas the latter diversifies the population and the action of society depends essentially on its members' comprehension, consent and choice. While each system should be evaluated against its real life conditions for its merits and demerits, the former stands out in one conspicuous aspect: it can formulate a long term plan (as long as twenty years or longer), based on long term interest of the society, and act on it whereas the latter can only probe behind the aggregate of each individual's behavior, interest, and decision. We shall later show the great differences the model on the mainland and that in Taiwan have rendered on their processes of fertility transition. But before we do that, let us take a brief look at the situation in Hong Kong and Singapore.

Hong Kong and Singapore bear one remarkable feature in common which is nevertheless in sharp contrast with mainland China: both are metropolitan. But

Figure 1. Crude Birth Rate: Mainland China, Taiwan Area, Hong Kong, and Singapore Chinese



SOURCES:

Figures for mainland China are from Chi-hsien Tuan: *China's Population and Planned Birth* (forthcoming).

Figures for Taiwan before 1964 are from K.K. Chang: *A Decision Making System for a Family Planning Program: A Case Study of Taiwan*, p. 14. For 1965-1978, see *Family Planning Program*, p. 2, National Health Administration, Taipei, Taiwan. For 1979, *Demographic Fact Book*, 1979.

Hong Kong data before 1960, from Ronald Freedman: Comment on "Social and Economic Factors in Hong Kong's Fertility Decline." Before 1975 are from Benjamin Mok: Recent Fertility Trends in Hong Kong, a chapter in Lee-Jay Cho and K. Kobayashi's book: *Fertility Transition of East Asian Populations*, p. 179. For 1976-1978, *U.N. Demographic Yearbook* 1976, 1977, and 1978.

Singapore data are from Chen-tung Chung: *Fertility Transition in Singapore*, p. 18, Singapore University Press, 1974, and his chapter in Lee-Jay Cho and Kobayashi's book mentioned above, p. 227. For 1976-1978, *U.N. Demographic Yearbook*, 1976, 1977, and 1978.

if we uncritically infer that since ample constraints to contain birth are associated with urban life, births in Hong Kong and Singapore must have been declining since long ago, we are mistaken. In fact, birth decline started no earlier than late 1950s, and birth trends of the two cities did not differ greatly from that of China mainland and are similar to the course of the latter's metropolitan areas like Peiping and Shanghai where birth rates were very high from 1950-57, and started to decline after 1958. The Chinese Singaporeans' birth rate began its secular declining trend sometime in the middle of 1950s'. Simultaneous to that of Taiwan, Hong Kong's birth decline should not be later than 1960. The secular dropping tendency of birth rate on China mainland could not be traced until 1970 with wild fluctuations in the two decades of 1950s and 1960s.⁷ In other words, the maximum time lag between the secular trends of birth decline is at most fifteen years. This phenomenon, emerged against the wide difference in circumstance (Singapore and Hong Kong are metropolitan while mainland China is predominantly rural with Taiwan standing in between), is by no means accidental. It seems to indicate that the final settlement of political sovereignty in 1949 concluded the internal disputes which had consumed the energy of the nation and set the people's attention on matters of non-constructive nature. The nation had been absorbed in a string of internal as well as external wars and strife of swelling scale and lengthening period for over a hundred years after the Opium War in 1840. Every episode of events was a matter of life and death. To name a few, the Taiping Rebellion which almost put an end to the Ch'ing Dynasty, lasted fourteen years (1851-1865) and affected eighteen most populous provinces of China. Since the 1911 Revolution, the nation entered the state of most stringent urgency. The Sino-Japanese War ravaged the whole country with a duration of eight years. Then followed the most serious and extensive civil war between the Communists and the Nationalists, which often engaged millions of soldiers from both sides in a campaign. War became the sole determinant of life, and the slogan was then put as "Everything is for the victory", so nothing could be expected to be given to anything else. To attract the energy of nation for wars, acrimonious criticism was invariably directed to anyone whose viewpoint would divert the public attention from wars. As for population, whether the criticism was based on traditional pronatalism or quotes from books of Mark, the result was the same: no diversion of the attention. As it is universal, the rule of politics first decides priority of current issues. The need of war and life and death strife created an artifact: population problems disappeared. People concerned were often befuddled by this artifact and despaired over China's population. And

strange still, this political urgency was over-riding. It not only prevented the Chinese inside China from considering other matters including population, but Chinese outside who formed a Chinese society in cities of Westerners' rule like Hong Kong or Singapore were in the same spell of influence. Taiwan's situation was different before 1945 when Japanese imperialism practised pronatalism. If we say Hong Kong's lack of action in birth control may be due to its proximity to the mainland in spite of the fact that contraceptive service was available as early as 1936, then how would we explain the fact that the Chinese in Singapore before 1940s' did not consider to adjust their fertility either? All this seems to conform with the idea that the year 1949 was the watershed. Before then all Chinese identified themselves with mainland China and since then the Nationalists, forced to withdraw to Taiwan, had to consider ways to hold their last retreat and had time to spend on population. Chinese Singaporeans began to seek their own political entity and plan for their own destiny, while Hong Kong people made up their mind to settle down on the island. As for the mainlanders, 1949 concluded feudalism and started the institutional change. With the ending of wars and life and death struggle, the urgency of population surfaced and accelerated with the elapse of time. The weight of three hundred years' incessant growth is now increasingly felt and could no longer be put off. In a word, each of the four Chinese populations is settled down where it is and left to probe its own path to resolve the common problem.

SENSE OF LIMIT AND THE MODEL OF FERTILITY TRANSITION

However, the above at best explains only the historical set up and evolution. The question that why the four Chinese populations arrived at the same conclusion to control population and started almost simultaneously to resolve it remains to be clarified. To answer this, we propose to discuss sense of limit. This concept is straightforward for the three islanders. They are surrounded by waters and demarcation is no longer an obscure vision or incomprehensible abstraction. The physical limits of living space can not only be seen but are actually felt and endured. In Hong Kong, the limit is most acutely expressed in the form of living quarters. One-room families are commonplace. Beds are let on the basis of three shifts a day, and rent eats up a fat part of one's wages. The struggle for living quarters is severe and often ends disgustedly or even in death.⁸ Realty and estate, which has become the most fabulously profitable business, is an irrefutable index of the limit of life. People cram everywhere and seem all on the street. This has not taken agriculture into account. Hong Kong has no farming at all except a few veget-

plots. If Kuangtueng denies supply of fresh water, Hong Kong's five million will immediately fall in a deplorable state. Singapore is better managed, but limit is as evident as it is in Hong Kong. Housing project is the most successful welfare program in Singapore. But this is only a better expression of the same issue. Housing has been turned into one of the major instruments for the government to exercise influence over natural increases. Sense of limit in Taiwan area is easily induced. The boundary of the island is within easy reach. The longest distance from the North to South can be made in a few hours by car. The limitation of space becomes ever conspicuous against the alarming speed of population growth making the problem increasingly exigent. In 1980, Taiwan's population was three times the size thirty-five years ago. Hong Kong and Singaporeans grew 2.5 times in 30 years from 1950-1980 and 33 years from 1947-1980, respectively. And Hong Kong, after thirty years of access to refugees from Kuangtueng had to stop the advantage of recruiting cheap labor in balance with the physical strains their admission created. The constraints have long been present. What makes things different is the cognition. Rapid development in population and many other aspects of life expands the sense of limit in leap and bounds.

The sense of limit developed on mainland Chinese is a unique experience that may bear great impact on other populations at large. Population control is, in its final analysis, resultant from the cognition of limit. A population can hardly be expected to agree to adjusting fertility without this basic consensus. Western history usually associates it with the development of individual against the background of industrialization, urbanization, improving education, the rise of women and personal aspiration. Such conditions are provided in Hong Kong, Singapore or, even in 1950's Taiwan. But on mainland China, even today, over 87 percent population still live in villages where conditions remain to be developed. How could they arrive at the consensus and consent to take actions to control fertility much more drastical than their folks who live in far better developed conditions in Taiwan, Hong Kong and Singapore? A part of the answer lies in the differences in the model of communication resulted from the nature of the existing politico-economic-socio organization.

But before we plunge into exploration on the case of mainland China, let us review briefly the communication models prevalent in Taiwan, Hong Kong and Singapore, as well as its related matters with fertility control. In such areas, communication model is basically the same as that of the West: the individual model, where the need of contraception, the decision on fertility behavior and

Family size and the choice of contraceptives are essentially private affairs left to individuals' care. But this model was developed over a long period of time during which mortality fell slowly giving plenty of time to allow this model to work a way out among individuals. But this is hardly reproducible for the mere fact that the mortality course in Taiwan, Hong Kong and Singapore, was not a replica of the Western model. But the major characters of the model, as listed above, have been retained. This similarity is not an unexpected coincidence, but a resultant from closeness of the basic systems. The private system has rendered the similarity inevitable. The difference is that, while the Western model is a person to person communication, the three Chinese cases have an agent called Family Planning with varying degrees of governmental sponsorship and participation. Family planning organization, whatever name it may assume, acts as an agent to provide many sorts of services for the benefit of contraceptive acceptors. It also does mobilizing work, but the client is free to choose whether to practise contraception or not, or if accepts, what contraceptives to use and decide the size of family and how it should be fulfilled.

Hong Kong

Of all the main aspects of family planning, the size of family is the most important. It is the ability of influencing final family size that differentiates the three specific family planning models. The Hong Kong one is the closest to the Western model. As a matter of fact, the Hong Kong Family Planning Association is a private organization although the Government has been funding it ever since 1955, and 40 percent of the Association's recurrent expenditure in 1979-80 came from the Government. The private character confines its activities and decides the nature of its relation with its clients. The Association is more or less benevolent. Although it does send workers to meet with its potential clients in the field, they could at best provide sensible argument on the necessity of birth control and explains their services to the would-be clients. But these are given as advice or information. What family planning workers hope to do is at most to turn the would-be clients into contraceptive acceptors by solicitation. They have no authority to enforce acceptance. As a rule, they wait for clients to visit them at their offices, where they provides information, discuss matters, answer questions and give instruction to contraceptive practice if they are visited. Mass media has been extensively used to propagate contraception. And Hong Kong's fertility drops pretty fast. Undoubtedly, the Family Planning Association should be counted

as a contributor to this decline. But how much is it accountable to the Association's mobilization is hard to gauge. For this is an ex post facto model, that is, clients have been conscious of their needs before their visit to contraceptive clinics as much as people know what they want to get before going shopping at a supermarket. And the Association functions in the similar way as any stores. In other words, what the association is providing is optional, not a must. People are free to decide if they want to practise contraception. And if they decide to practise, they are free to seek whatever services they deem adequate and go wherever they believe they can get such services.

Apparently this ex post facto model of family planning can be operational only when persuading the population to practice contraception is minimal. And Hong Kong's metropolitan life provides with lots of constraints on fertility, among which housing is the strongest stimulant not only for family planning, but for delaying marriage as well.¹² The average age of women at first marriage rose from before 1941's 19.5 to 22.7 in 1966-70. Proportion married for age 20-24 was 51 percent in 1961; ten years later, it was 32 percent. Total fertility rate fell from 5.2 in 1961 to 2.8 in 1975.

Before we pass on to the case of Taiwan, let's dwell in a bit more on another aspect of the Hong Kong model which is also common to cases of Singapore and Taiwan. As the name suggests, the model is primarily centered at the family. This orientation takes family as the basic unit for the consideration of its welfare and reproduction. A couple are motivated to cut fertility as a means to maximize the family's welfare. The logic is that each individual is the sole determinant of his/her reproductive behavior. Consequently the development of the society is mainly dependent on the aggregate of its' members' preferred fertility behavior. Although politico-economic-socio happenings do bear effects on fertility, they are mostly responses to happenings unplanned and often unpredictable. More importantly, the individual fertility is spontaneously adjusted on the consideration of the interests of the person per se. This does not always promote, least of all, coincide with the over-all interests of the society. This is the loophole innate to an individual-oriented model and has been evidenced in many countries in Europe. If the untransited fertility is a blindness of uncontrol, this individual and spontaneous model is liable to blindness of either over-control or under-control. To set a fertility at a right level to the best advantage of the society as a whole, in long term and short term, remains a test too severe for the model to endure.

Finally, the Hong Kong Government involvement and participation is usually

only financial. Recently, the Government has taken over thirty-two of the thirty-five family clinics, showing a step forward for a more active participation in population control which may bend to the establishment of an official population policy. This minimal participation and involvement of government makes the Hong Kong model the closest one to the original western pattern of fertility control.

Taiwan ROC

Taiwan's fertility transition model has experienced two stages according to whether there is government involvement and participation. Before 1968, the population was left to themselves as far as fertility was concerned. Taiwan's birth rate started to decline in 1955 (4.5%). By 1968, it had been cut to 3.0%. This was a replica of the Western individual-oriented model. But even in 1968, its increase rate was so high (2.3%) that the Government eventually gave up its traditional stance of pronatalism and established family planning program as a part of the government work. In 1968, the "Regulations Governing the Implementation of Family Planning in Taiwan Area" was promulgated, followed in 1969 by the promulgation of "Outlines of Population Policy of Republic of China". With government commitment to family planning, Taiwan differentiated its fertility transition model from that of Hong Kong, where the governmental function is minimal. The difference is important, but the common characters they share are far more noteworthy, i.e. free decision on whether accepting family planning, free choice on contraceptive method and free decision on family size and ways of its fulfillment, as is explicitly expressed in the third article of the aforementioned Regulations.

Although Taiwan government participation and involvement certainly is necessary and may be of great implications its effect on controlling fertility is hardly enviable. In 1978, its birth rate was still 27 percent higher than Hong Kong, where government keeps a distance from direct participation in family planning. To look internally, after twelve years of the establishment of the program, the birth rate in 1980 was 23.4 per 1000. This was only 17 percent less than that in 1968, and 47 percent lower than in 1955. In other words, of the total decline from 1955-1979, about 3/4 reduction happened in the thirteen years when government stayed away from family planning, and 1/4 decline took place in the twelve years of government involvement. This does not mean that the pace of decline slackened because of government participation. Rather, it was due to its late involvement when fertility had dropped considerably and was already close to

the current desirable final family size. The correct interpretation should be without government participation, the decline after 1968 would have been slower. This is more due to the nature of the model than to any fault arisen from the government commitment. In 1976, the desirable family size was still as high as 2.9. Therefore the major problem is now to induce people to have a lower level of desirable family size and act upon it. Proposals are made to review and revise the 1968 Family Planning Regulations and advocations are made to follow the Singapore example by abolishing the fifth article (which defines the eligibility for contraception free of charge at the third parity and over, and installing differential charges for birth delivery and no full pay for third and higher parity maternity leave, no priority of school enrollment for third and higher parity children, no income-tax deductions for the fourth and subsequent child). But these and many others are all inducement. Undoubtedly their adoption would dampen fertility. But it remains to be seen if they are sufficient to dampen fertility to a desirable extent. The metropolitan character of Singapore society and its paucity in size may render its experience hardly reproducible.

Singapore

The Singaporean Chinese have provided a most successful experience using the model of family planning. The primary condition of the Western individual model lies in the fact that circumstances work on individuals and induce them to cut fertility. This is a process of acting and reacting on the principle of *laissez-faire*. It is spontaneous and voluntary. People, when so motivated, take the initiative. It has a lot of advantage and superiority over models of other category. But it suffers from one shortcoming — initiative is hard to come by. Family planning is a model designed to overcome this weakness by setting up an organization agent to replace, at least supplement, the person-to-person model of communication. The introduction of government participation strengthens the function of the intermediate agent. This is great modification of the original model, for the government assumption or responsibility if not involves, at least foretells, mandatory actions. The inability of Taiwan's model of family planning to channel fertility to a publicly desirable level predicts the further involvement of the government and advocations and recommendation have been voiced in a comprehensive appraisal of Taiwan population policy by professional demographers and experts in related fields for the adoption of what they term as "semi-mandatory measures of Singapore". What they mean by "semi-mandatory" measures refers to the

differential cost of giving birth to a baby etc. as quoted earlier. Essentially these are more disincentive than mandatory, and therefore the Singapore model still keeps the three principles of family planning listed above. The game of fertility designed by the Singapore government is basically a trade-off of advantages and disadvantages and an individual's ability and views on the balance of value of life. Verbally, a couple is free to make decision on family size and the way of its fulfillment. What the Singapore government can do, by its current rules is to encourage a certain family size and/or discourage other family sizes. But it cannot manipulate fertility.

The nature of the Singaporean Chinese model is seen in the aspect that what role the government can play and how far they could go on the basic rules of family planning mode. The most noteworthy point is not merely their awareness of where the crucial problem lies, but in its ability to mobilize its strength to strike on the hard-core of the problem. This has a lot to do with the size of Singapore and its metropolitan character. The crucial point of the problem is currently not just to channel a downward trend of fertility, but to bring it to a desirable level. So the policy must be addressed to the fundamental problem of motivating the population to lower their fertility further down to replacement level. Presently the inducements at the disposal of government are education and housing plus differential costs of maternity, and sterilization as well as income tax deductions measures for the fourth and subsequent child. All may have some impact on fertility. By 1980, the total fertility rate fell to 1.9, while Hong Kong was 2.6 and Taiwan was 3.1. If Taiwan is not generally comparable to the metropolitan conditions prevailing in Singapore, Hong Kong is in similar position. Yet Hong Kong's rate is 37 percent higher than that of Singapore while Taiwan is 63 percent higher. These differences do argue favorably for the Singaporean measures. They do contribute to the decline of fertility in Singapore. They may be as effective in Hong Kong as it is in Singapore. But, as we do not know how much the effects are conditioned by Singapore's metropolitan life, the extent of influences from such measures, would remain a question if they are applied to Taiwan. The major question is: what have been proved to be successful incentives and disincentives in Singapore may not be so viewed and accepted elsewhere.

However, the Singaporean experience does show that there is room to explore in the ways of affecting people's attitude to accept lowering fertility without stepping over the basic rules of family planning. If family planning in Singapore is not yet mandatory; it is at the doorstep of it. One step forward would change

the nature of the model and run into a different type of situation.

Mainland China

As is said above, sense of limits leads to the decision of birth control. But sense of limit is usually associated with social development characterized by modern society. How then China mainland arrives at its sense of limit which facilitates birth decline, as most of the conditions familiar in the West for birth decline are unavailable? Yet China mainland was able to bring its birth rate to about 16 per 1000 by 1980, and has become one of a few lowest birth rate countries in the world. It is trying to bring birth rate down by plan to a level that no other country is able to think of doing. Here lies a most challenging story that makes one ponder at how it is brought about.

Population growth of over three hundred years long had acted only as a background factor. 1949 Revolution was claimed by the ruling party as the end of Chinese population problems. But the reality is that the problem of population is the most relevant condition circumstantial to China's evolution of history and has finally become the most important issue. Communist Vice-Chairman Chen Yun, most respected partisan and founder of modern Chinese economy thought, said in 1980 that "promoting single-child per family is presently primary."¹³ Socialism could not exclude population problem as many dogmatical theoreticians had arbitrarily alleged. But it is true that Chinese socialism has paved the way to its settlement and demonstrated ability to tackle the most difficult issue of mankind.

Let's dwell in the rural sector and see how the problem is being resolved. Collectivization of agriculture and communization of the rural area simplified not only the relation between people but especially between nature and man and produced one very important fact which made people arrive at a sense of limit. By communization, all the peasants of the village merged into an entity like an extended family, and pooled all that is available together for collective production. Land, the major source of their subsistence, has become a definite figure and actually a constant fixed size, while there are more births than deaths. This fact has long alerted the peasants, and a consensus has been reached that birth must somehow be put under control. This is a decisive development, but it is a latent factor and to translate the consensus into actions, much work needs to be done. Here comes the question: what model should be feasible to suit the specific situation of China mainland, and capable to bring about desirable results? The answer

is the collective model of organized transition, i.e., an ante facto model.

The collective model is a reflection of the way of life of the Chinese system of society in mainland. The transformation from private ownership system to public ownership turned the country into a tightly structured pyramid of bureaucracy with a rare degree of homogeneity. The relationship between the government body and the people and that among themselves have become greatly simplified. Although the Chinese in mainland have tried so hard and so long to rid of the traditional family, the idea of family seemed innate to them and in the end they turned the whole society into a great extended family in the form of work unit within which people work together like in a workshop or a production team and brigade with a way of management that bears remnants of the traditional system of patriachalism. The degree of homogeneity in the commune is even higher than that in the urban.

The transformation of ownership system socializes productive labor. Consequently, women's productive labor is recognized as of value and is so rewarded. This is particularly noteworthy in the rural where before women's productive labor was not respected and reflected in their status. Traditional family system rendered them an appendage to the man. Now they are universally employed by the commune and paid in verbal term of the principle of equal work equal pay. The recognition of the economic value of women's productive labor strikes off their bondage to family, and they suddenly found themselves as participators of social activities outside the family. This development bears great significance in the fact that they play the most important part in the campaign of birth control.

While socialization brings about the sense of limit, it does not imply that the peasants take the initiative and spontaneity to adopt contraception. The sense of limit is only an atmosphere conducive to birth control. In the case where family planning model is feasible, motivation is mainly done by people's spontaneous recognition of the necessity and voluntary response to the external demand. This process of motivation depends solely on the level of development. Mainland China therefore had to look for a communication model that does not depend upon the level of development, can be effective for the purpose and acceptable to the people.

The sense of limit has acutely been felt by the Communist regime. In 1957, only eight years after the establishment of the regime, the policy of population control was decided. After about fifteen years' preparation mingled with ambivalent population development, it was decided in 1971 that planned birth should be

extended to all the countryside. The pyramid bureaucracy of party structure is used to mobilize the whole population and a top to bottom communication model was formed, through a rare process of extensive education and persuasion, i.e. politic work by the Chinese terminology. In 1971, a separate bureaucratic body specifically for the implementation of planned birth was set up, which in 1981 was turned into a powerful organ called Planned Birth Commission in the charge of a vice-premier, a rank higher than a minister.

This top-to-bottom mobilizing model is a significant development in the pattern of fertility transition. While the islander Chinese populations adapted the western individual model of person-to-person communication to the family planning model with varying degree of government participation, the mainlander Chinese invent a collective model of organized transition initiated and led by the government. Not only the communication channel is changed from a basically horizontal movement of person-to-person transmission to the vertical movement from top to bottom educational and persuasive communication, but also the decision of family size is made by the regime. Since 1971, when reproduction was defined as "later, longer and fewer," i.e. marry later, wait longer time and have fewer children. The preferable family size was two. In 1979, the single-child family policy was decided. And even the individuals' choice of means of contraception is limited. The country adopts primarily surgical contraception including IUD insertion and sterilization plus abortion.

The single-child family policy was decided on account of the national interests of long years consideration. It is a design to by pass the growth momentum by the demographers in mainland China – Sung Jian, Wang Wanzhen, Tian Xueyuan, Yu Jingyun and Li Guangyuan, with an aim to make the population sooner arrive at the stable status at zero growth rate with a smaller size.¹⁴ To put it briefly mainland China wants to practice single-child family policy for some twenty years from now on and stabilize the final population size at 650-700 million.

The collective consideration over long years ahead is a reflection, and indeed, a correction of the neglect of population problems of an undue length of time over three hundred years. The accumulation of the problem has resulted in an extraordinarily heavy pressure and so has to be resolved by an extraordinary measure. Population has become an issue of the first priority of the regime, and collective consideration must precede individuals' preference. If the Chinese mainland as a whole is plagued by the population pressure, it cannot afford its constituent citizens to have the luxury of individual preference over family size.

On the other hand, individuals' welfare can be preserved only when the national interests are safe guarded. A billion population is a burden heavy enough, and the prospect of adding another billion even at the replacement fertility level in one hundred years would make the situation even worse. All these call for a powerful model to transform the population into a more manageable shape. Strict leadership, administration and supervision become the only choice to accomplish this unprecedented mission. And in 1973, a decisive measure was taken: reproduction is licensed. The regime decided to extend to the whole China mainland the measure that people are not allowed to procreate without a birth permit. This measure practically outlawed the third birth in the middle 1970s. In 1979, the single-child family was installed. Although there are ample incentives for the single child family, plentiful disincentives for the second birth and economic punishment for the third birth, the Chinese on mainland are strongly opposed to the compulsory mentality. The major strength of implementation is still politics by means of education and persuasion. In principle, individuals have the choice whether they want one child or not, the desire of going over has become the straining issue between the peasants and the government. The government means to stop the family size at one. The decision of family size is essentially in the hand of the government. Incidentally, when the government plays such a dominant role in planned birth, contraception costs are all borne by public funds.

RESPONSES OF REPRODUCTIVE BEHAVIOR TO THE MODELS OF FERTILITY TRANSITION

Marriage

Marriage age used to be very low for the Chinese. The average age of rural women at first marriage was about 17.5 from 1933 to 1948 in Jinnan area, Shandong province according to recent released data. This is in good agreement with what Chen Ta observed in Yunnan province (17.6 years for Cheng Kung area, 1940-1944).¹⁵ Taiwanese women then married at a little higher age with a mean age of 18.4 before World War II. Hong Kong's urban character bore influence on women's age at first marriage. It was on average 19.5 before 1941, and 20.9 in 1941-1945. This was just a little over a year higher than the then level of Chinan City, the capital of Shantung province. The Singaporean Chinese women were in a similar status to that of Hong Kong. Women's median age at first marriage was 19.2 before 1941, and 19.8 in 1941-1945 (see Table 1). All these show that

before the World War II, Chinese women married no later than age 20, no matter whether they were in the rural area or in the city on the mainland or on the islands.

Table 1
Age at First Marriage

China Mainland (Chinan Area Shantung)			Taiwan ROC			Hong Kong Chinese- Singaporeans	
Year	Mean age Urban	Mean age Rural	Year	Mean age	Year	Mean age	Median age
1933-1949	19.5	17.5	Before 1946	18.4	Before 1941	19.5	19.2
1949-1962	21.7	19.2	1947-1951	19.5	1941-1945	20.9	19.8
1963-1974	25.0	21.8	1952-1956	20.5	1945-1950	21.3	20.5
1975-1979	26.2	24.0	1957-1961	21.0	1951-1955	22.1	21.1
			1962-1966	21.2	1956-1960	23.1	22.0
			1967-1972	21.3	1961-1965	23.3	23.0
			1975-1979	23.3	1966-1970	22.7	23.6

SOURCE:

Mainland China data are from Chi-hsien Tuan: *China's population and planned birth*. (Forthcoming)

For Taiwan, it is from T.H. Sun and Y.L. Soong: *On Its Way to Zero Growth: Fertility Transition in Taiwan, Republic of China*, in Lee-Jay Cho and Kazumasa Kobayashi, eds., *Fertility Transition of the East-Asian Populations*, Hawaii, 1979. For 1975-79, it is calculated from *Taiwan-FuKien Demographic Facts Book*, 1975, 1976, 1977, 1978 and 1979.

Hong Kong materials are from Benjamin Mok: *Recent Fertility Trends in Hong Kong*, a chapter in Lee-Jay Cho's book.

Singapore data are according to Chen-Tung Chang: *Fertility Transition of the Chinese in Singapore*. Also in Lee-Jay Cho's book.

The years after the World War II saw universal changes in the Chinese marriage ages. Taiwan women delayed their marriage age by about five years in thirty-two years from 1946-1979. Hong Kong women's age at marriage increased 3.2 years from 1941-1970, but the increase after the war was only 1.4 years. The median age of marriage for Chinese women in Singapore made an increase of 4.4 years from 1941-1970, while their post-war increase was 3.1 years. However, the largest increase is found among women on mainland China. From 1949 to 1979, rural women (in Chinan, Shantung) delayed marriage by over 6.5 years. From 1949 to 1974 the increase was 4.3 years, still the highest increase of the four Chinese populations.

The rise in age at first marriage in Taiwan took place in the fifteen years from 1946 to 1961, and was stabilized at the level of age 21 for over twenty years. In the eleven years from 1961 to 1972, there was hardly any appreciable rise until the late 70s. The similar phenomenon is also found in Hong Kong. The increase stopped by 1960 when women's mean age at marriage reached 23.1. It went up to 23.3 in 1961-65, and actually declined by 0.6 years in 1966-1970. It is interesting to see that marriage age in the Chinese society in Singapore kept rising, noticeable departure from the path it used to share with that of Taiwan and Hong Kong. For the rural Chinese on the mainland, not only did age at marriage keep increasing to 1979, but the pace also accelerated with time as well. In the fifteen years from 1949 to 1974, marriage age went up from 19.2 to 21.8, a rise of 2.6 years. But it was boosted to 24 from 1975 to 1979, a rise of 2.2 years in a span of five years. The urban case in mainland China moved earlier than that of the rural. Fast increase of marriage age started from 1949, and its pace never slackened. In fact it even accelerated slightly in a recent period.

The processes of change for the three islander Chinese cases should bear more similarities than otherwise. They are essentially a course of evolution affected mainly by spontaneous responses to external changes as well as internal consideration on values of life. Taiwan is more strongly influenced by the old Chinese custom of marriage; in the process of transition, after initial rises women's age at marriage settled around 21 years for almost twenty years before it climbed up again, while Hong Kong followed closely behind and the mean age at marriage was about 1.4 years higher than that of Taiwan in early 1970s. The difference may be due primarily to rural-urban structure. In Taiwan 50-70% of the population were urban while Hong Kong was practically metropolitan. Singaporean Chinese seem to be more willing to adjust themselves to metropolitan environs and are more

aspired by the urban life. By 1970 they still did not seem to have reached a consensus regarding an ideal age at first marriage. This is consistent with the eagerness and fast pace of the Singaporeans in their effort to improve their political, economic and social status.

Mainland China's course of rising age at marriage is different. In the effort of raising marriage age, the government has played a decisive role though it is hard to determine how much of the rise is due to the influence of government policy on late marriage and how much if any, is due to evolutionary causes. In 1980 the Second Marriage Law¹⁶ defined the minimum marriageable age at 22 for males and 20 for women, while the earlier administrative regulations set the marriage at 23 for rural women; and 25 for females in the urban areas. In 1981, the average age at marriage may drop somewhat due to the initial enforcement of the Second Marriage Law, but evidence seems to show either that this may perhaps be ephemeral, and tight control is setting in again¹⁷ or marriage age control may not have been universally relaxed at all.

Table 2
Percent Distribution of Marriages by Brides' Age Peiping, 1975

Age	Urban	Rural	Cumulative	
			Urban	Rural
23	—	40	—	40
24	.6	18	.6	58
25	40	16	40.6	74
26	25	13	65.6	87
27	15	6.8	80.6	93.8
28	8	6	88.6	99.8
29	4.4	.2	93.0	100.0
30+	7	—	100.0	
Average age at marriage	26.7	25.0		

SOURCE:

Yuan Fang: Preliminary Analysis on New China's Planned Birth and Birth Decline, Department of Labour Economics, Peiping Economics College, October, 1980. Mimeograph.

As Mainland China is lack of overall data as a whole, one would be doubtful whether the Shantong figures shown in Table 1 are representative of China. But evidence from other areas indicates higher ages at marriage. Peiping women, for example, married later than their sisters in Chinan area, Shantong. In 1975, rural women in the countryside of Peiping married at an average age of 23, one year higher than that in rural Chinan, whereas urban cases were close, 26.7 for Peiping and 26.2 for Chinan. The percentage distributions of age at first marriage as shown in Table 2 is noteworthy. It is sharply truncated at lower bound showing an engineering effect due to stringent government control over age at marriage as a part of the planned birth program, whereas in any of the other three populations, the distribution is widely spread out as is anywhere else. As soon as reaching the regulatorily defined age, women in China rush to get married. Forty percent of women in age 25 (urban) and age 23 (rural) contract their matrimony at the lowest regulatorily permissible age for marriage.

As Peiping covers quite a large area, the figures in Table 2 may be further used to estimate age-specific proportions of married women. This is done by accumulating the percentages at the consecutive ages. The measure assumes that if the percentages prevail, the accumulated percentages after age 30 should indicate the level of age-specific married proportions. This is generally alright except there are a few spinsters and slight attribution of husbands' mortality plus the effect of rising marriage age. It was estimated that less than 3% women never married. Then the highest married proportion should be 97% at age 30 for urban women and 28 for the rural women. Less than 75% of urban women in age group 25-29 are currently married while it is about 90% for the rural women. For the age group 20-24, the currently married proportion is nil for urban women; it was about 20% for the rural. The corresponding proportions for Taiwan in 1974 are 44% (20-24) and 85% (25-29). In Hong Kong, the figures were 32% (20-24) and 79% (25-29) for 1971. In Singapore, the proportion of currently married Chinese women's figures were 40% (20-24) and 75% (25-29) in 1970.

Combining Peiping rural and urban together, the currently married proportions might be less than 10% for women in 20-24, and a little over 80% for 25-29. If we apply Peiping's rural and urban figures to estimate the level of currently married proportions for the whole nation, the figure for women aged 20-24 might be 17% and 88% for 25-29. The proportion may reach a maximum at 95-97% in age 30-40, and decline somewhat in age group 40-44.

Changing nuptiality is the most convenient and economic way to initiate

a birth decline. If we arbitrarily assume women's active reproductive span as from 20-40, by practicing late marriage, women in China would only expose 75% or 80% of their reproductive life to childbearing, 82% for the Chinese Singaporean women, less than 87% for the Hong Kong women and 84% for the Taiwan women. The Taiwanese women's exposure to reproduction is not much higher than that on the mainland due to rise of marriage age alone. For Hong Kong and Singapore, their exposure to reproduction should be lower, at least, not higher than that of the mainland women if recent changes in the 70s' are brought under consideration.

Similar to the above analysis, if we use age 40 as the average age at menopause, then increase of marriage age in Taiwan (from before 1946 to 1972) reduced women's exposure to reproduction by 13%. The decline for Hong Kong and for the Chinese in Singapore should be over 20%. It was 29%-33% for women on the Chinese mainland. Marriage age adjustment has been extensively used as a powerful means to cut exposure to fertility on mainland China. This is especially effective for fertility control because the Chinese still maintain a custom that abhors at birth out of wedlock and considers such births a disgrace.

Fertility

As is said adjusting marriage age is a most economical and ready measure to cut fertility. But marriage can only be postponed, it cannot be eradicated. Without contraception to cut age specific fertility, a mainland Chinese women could bear 5-7 children even at a late marriage age of twenty-five. Birth control eventually depends on the ability of contraception. It must be pointed out that marriage postponement, although very handy and inexpensive, may be costly from the social, ethical, and psychological point of view. International experiences show that marriage age has only a transitional value as a means to cut fertility. It is employed at the initial phase of birth control movement when the need of birth control is hardly met with by the availability and efficacy of contraception. But the spread of contraception per se can replace the conventional means of fertility control. If a population has become versed in the use of contraception, fertility is no longer an unavoidable outcome of marriage. Consequently, marriage age would be eventually ruled out from the arsenal of birth control. This is also reflected in the 1980 Marriage Law of PRC, which sets the ages at marriage five years younger than what the government regulations assert. Although marriage age is still under tight control, the relaxation of the expedient regulations is only a matter of time and a full enforcement of the new Marriage Law should be

expected.

Age-specific fertility rate is a traditional measurement of human procreation. Taiwan recorded its highest total fertility rate as 7.0 in 1951, since then it had been declining to 2.7 in 1979. In 28 years, total fertility rate had been cut by more than 50%. In 1968 when the government sponsored family planning program started, the evolutionary process alone had cut total fertility rate from its 1951 level to 4.3, a reduction of almost 40% in 17 years. Then the rate went further down to 2.7 in 1979, a 23% reduction from the 1951 level. In other words, 37% of the total reduction in fertility from 1951 to 1979 was achieved during the past 11 years, whereas a large chunk of fertility decline (63%) took place during the first 17 years when there was no government sponsored family planning program. In any case, a 3/5 reduction of fertility in less than 30 years is by no means a trifle achievement.

Taiwan has a complete set of age-specific fertility rate since 1947. The records show the course of downward trend fluctuated up and down for about ten years. Since 1960s, total fertility rate rarely went above the level of the preceding year. The pace of decline seems rather stable. It took seven years for total fertility rate to drop one birth from its highest level of seven in 1951 to six in 1958. Since then a reduction of one birth required an average of only six years. Does this imply that total fertility rate would be near two by year 1980? Well, by 1978, the figure lingered at 2.7 showing Taiwan has perhaps arrived at a stage where people are considering how they should bring the fertility further down to the replacement level. In the meantime, the government is reviewing the family planning policy, and looking for ways to achieve a lower total fertility rate.

Hong Kong's earliest record of total fertility rate was 5.2 for 1961. By 1977, the figure dropped to 2.4, scoring a 54% decline in sixteen years. As in Taiwan, the reduction of the first one child took about seven years, and six years was needed for the reduction of total fertility rate from 4.2 to 3.2. The fertility seems to have kept its downward pace. By 1977, just four years after total fertility rate reached 3.2 in 1973, the rate went further down to 2.4. It looks as if Hong Kong's total fertility rate would not linger before it falls to the replacement level.

The earliest age-specific fertility rate of Singaporean Chinese can be traced to 1947 when the total fertility rate was 6.6. The total fertility rate did not decline until ten years later. The latest figure was based on the total population, and was about 1.9 for 1977. The Chinese figure may be a little lower than the total Singaporeans, probably at a level 1.8. In twenty years, the Chinese total fertility

rate declined by 72%, a very great change indeed. The pace of reduction was much faster than that in Taiwan and Hong Kong. The reduction of a first one birth from the 1957 level took only three years, and so did the reduction of a second birth. For a third and a fourth birth reduction, each took four years. In 1975, it declined to the replacement level of 2.1. The significant point is the decline trend did not linger, but went down to 1.8 in 1977. Although this is a very important signal that lends strength to the idea that the Singaporean Chinese are undergoing a radical change in their reproductive attitude, it requires a little more time before any conclusion can be made whether the Chinese in Singapore have accepted a family size lower than two, as total fertility rate is only a period measurement.

The Chinese on the mainland do not have systematical statistics for us to measure the nationwide fertility of the whole country before 1975. However, a survey in Hunan¹⁸ shows that the mean number of children ever born was 4.2 in the 1950s, 4.9 for the 1960s, and 2.9 for the 1970s. Professor Song Jian and his group report that total fertility rate was 3.02 for 1975, 2.58 for 1976, 2.43 for 1977, and 2.31 for 1978.¹⁹ The 1979 level fell slightly to 2.2. The figure for 1980 is not available, but judging from the effort made in the year, total fertility rate must be about 2.

If we arbitrarily set mainland China's total fertility rate at 5 in 1970, when the nationwide campaign started, then in a five year time, mainland China had cut two births down from the probable high level of 5. From the level of three, it took five years to reduce another birth and dampen the fertility below replacement level. According to the single-child policy, the country plans to reduce total fertility reduction to 1 in another five years. In other words, mainland China intends to reduce its fertility to such a low level all within so short a time that few demographers outside of China would believe this to be possible. If this target is successful, it would be an experience never encountered before in human history.

The above brief description indicates that mainland China has been reducing its fertility at an average rate of 6% a year. In ten years it reduced births to 40% of the 1970 level. Second comes Singapore, in twenty years (1957-1977), it brought fertility down to 28% of the level during the peak year of 1957, averaging an annual rate of decline of 3.6%. Hong Kong's fertility declined 54% in sixteen years from 1961 to 1977 with an average decline rate of 3.4% per year. Taiwan's total fertility rate in 1951 was unusually high, counting from this year, in 27 years, total fertility rate was reduced by 61%, giving an average annual decrease of 2.3%. Taiwan's

pace of decline was less than 40% of that on the mainland, while the figure for Hong Kong was 57%. The case in Singapore is similar to that of Hong Kong; it was 60% of the speed of mainland China. To recapitulate, it took mainland China ten years to reduce its total fertility rate from five to two. The Chinese in Singapore spent twenty years to cut their rate from 6.5 to 1.8. Hong Kong's total fertility rate declined from 5.2 in 1961 to 2.4 in 1977, a period of sixteen years. And it took Taiwan twenty-six years to bring the rate down from 7 in 1951 to 2.8 in 1977. In terms of the number of children avoided, the Chinese in Singapore rank first, cutting an average 4.7 births per woman. Second comes the Taiwanese with a total reduction of 4.2 births per woman. The Chinese in the mainland and in Hong Kong reduced 3 and 2.8 births per woman, respectively.

Age-Specific Fertility

Age-specific fertility rates are not available for all the four Chinese populations even in the recent years. The problem is with mainland China. As an expedient, let us use whatever is available from mainland China, in order to set some idea about the pattern of this type of fertility measurement. According to information for 1975 (Shanghai for 1974) when fertility had been cut substantially the general pattern of age-specific fertility did not differ much from that in the earlier pattern (see Figure 2) for the three islander populations which rely on family planning program for birth control. The fertility rates spread out over the whole range of reproductive period. This may be good evidence showing the general character of the family planning models through a process of evolution. At the younger age groups, the rise of marriage age bore strong effect on the level of fertility whereas the older groups were more affected by the use of contraception. But these dampened only the level of fertility; the pattern remained similar to natural fertility. But look at the picture in the China mainland; the age-specific fertility pattern is substantially different from the other Chinese populations. Age-specific fertility rate is no longer symmetrically (roughly) distributed. This is particularly conspicuous in the case of urban Peiping. The commonly observed age-specific distribution was truncated at its height (age 25-29) and only the right hand half of the curve remains. This is a phenomenon strange to demographers, and a mark left by the unprecedented measure of planned birth - a model that can only be described as revolutionary. Such a process of population control reveals a remarkable degree of precise engineering effect.

The difference between the effects of the family planning model and that

Table 3
Age-Specific Fertility Rate, No. of Live Births per 1000 Women

Age	Peiping, 1975			Shanghai	Hong Kong	Singapore	Taiwan, ROC.	
	Rural	Urban	Total	1974	1975	1975	1975	1952-1956 Average
15-19	—	—	—	.03	17	14	37	50
20-24	101	—	58	23	113	97	194	267
25-29	187	163	177	162	180	164	215	339
30-34	94	64	81	57	112	101	83	294
35-39	43	15	31	8	60	36	27	219
40-44	6	1	4	2	18	8	8	107
45-49	—	—	—	1	3	1	2	26
Total fertility rate	2155	1215	1755	1261	2515	2105	2830	6510

SOURCE:

Peiping data are from Zhang Lizhong: Birth Control, Late Harrige and The Decline of Population Growth Rate, Renkou Yu Jingji, No. 1, 1980. Peiping total was arrived by an urban-rural birth ratio of 43 : 57.

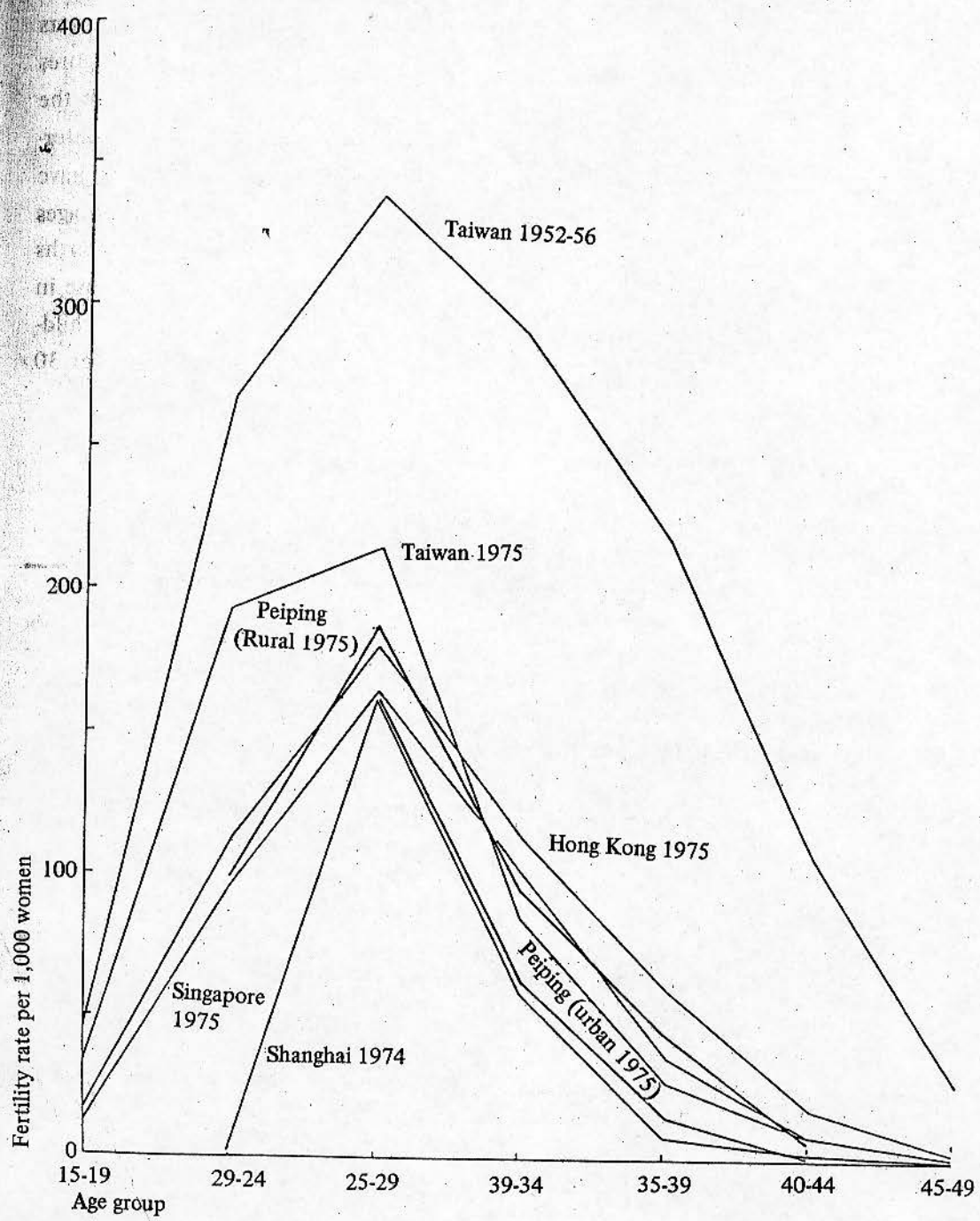
Shanghai data are from Renkou Tongji Xue (Demography), The Chinese People's University, July, 1980. Mimeograph.

Hong Kong: from U.N. Demographic Year Book, 1976.

Chinese Singaporean data: from Chen-Tung Chang in Lee-Jay Cho and K. Kobayashi's book.

Taiwan data from: Exploration of Our Country's Population Policy and Population Planning, Taiwan ROC, 1979.

Figure 2. Age-Specific Fertility Rate of Four Chinese Populations



of planned birth can also be demonstrated in Table 4. The case for urban Peiping is most illuminating. The planned birth program not only truncated the early ten years of reproductive life, but practically chopped off the last fifteen years from childbearing, leaving only ten years for procreation. The urban Peiping figures are very indicative for the total fertility rate was only 1.2 – a target at which the single-child family policy intends to surpassing. That is, if mainland China is determined to carry out the single-child family policy, the age-specific fertility will have to converge first on the urban Peiping pattern by confining all births within ages from 25 to 34. If single-child norm is achieved, I guess almost 80% of all the births must be born by mothers at age 25-29. The remaining 20% will be by those in age 30-34. In other words, single-child family policy will ultimately confine childbearing to a very narrow range, namely, among mothers of 25 to a little over 30 years old.

Table 4
Relative Contribution of Women in Each Age Group to Total Fertility Rate

Age	Peiping, 1975			Shanghai	Hong Kong	Singapore	Taiwan, ROC.	
	Rural	Urban	Total	1974	1975	1975	1975	1952-1956
15-19	—	—	—	—	3	3	7	4
20-24	23	—	17	9	22	23	34	21
25-29	43	67	50	64	36	39	38	26
30-34	22	26	23	23	22	24	15	23
35-39	10	6	9	3	12	9	5	17
40-44	1	—	1	1	4	2	1	8
45-49	—	—	—	—	1	—	—	2
Total	99	99	100	100	100	100	100	101

SOURCE:

Peiping data are from Zhang Lizhong: *Birth Control, Late Marriage and The Decline of Population Growth Rate*, Renkou Yu Jingji, No. 1, 1980. Peiping total was arrived by an urban-rural birth ratio of 43 : .57.

Shanghai data are from Renkou Tongji Xue (Demography), The Chinese People's University, July, 1980. Mimeograph.

Hong Kong: from U.N. Demographic Year Book, 1976.

Chinese Singaporean data: from Chen-Tung Chang in Lee-Jay Cho and K. Kobayashi's book.

Taiwan data from: *Exploration of Our Country's Population Policy and Population Planning*, Taiwan ROC, 1979.

For the other three populations which have adopted the family planning model, birth control has concentrated childbearing to the age group 20-34 years. But the concentration is much less marked than that in mainland China. In Hong Kong, the three age groups contributed 80% of the total births, Singapore, 86%, and 87% for Taiwan. During the high fertility years (1952-1956) the figure was 70% for Taiwan. These figures are comparable to rural Peiping (88%). But in urban Peiping, 93% of births were contributed by the two age groups 25 to 29 and 30 to 34. Even in Shanghai data, which include rural areas, it was 87% for the two age groups. The planned birth program in China mainland has restricted childbearing in a very short period and concentrated it in the age group 25-29; whereas the family planning program has confined births within a wider span of the reproductive period and with a much less concentration in ages 25 to 29 years.

Parity Fertility

Age-specific fertility is the conventional measure reflecting primarily the biological character of human reproduction. Its wide use is mainly due to the fact that Western demography is a discipline based on observations of past events. It tries to catch up with the reality by means of what is known of the past. But if demography is to play a guiding role in political, economic, social, psychological, and cultural development, a futuristic approach is required. This necessitates an additional measure to the traditional concern merely with the biological aspects of human reproduction. Such an approach has become increasingly clear in mainland China's attempt to cope with and reshape its population course, as is demonstrated by its policy of single-child family. The need for a measurement of fertility that primarily reflects its social character is in order. When mainland China approached its control over birth, it started from parity fertility. The management of planned birth is essentially by means of parity control. Fertility transition is essentially parity transition; fertility control is actually parity adjustment. To a woman who practices contraception, what she aims at is the control of her parity. To a society that attempts to control population, parity fertility is the efficient means and clear guide for the government to manipulate. Parity fertility, in terms of usefulness, is of paramount importance. While age-specific fertility is very sensitive to social conditions, its changes do not necessarily reflect the attitudinal shift toward a final family size. There is great room for it to vary especially for controlled fertility. Even in the case of China mainland where birth is under tight control, there are still 10 years of age span for fertility to vary.

Table 5
Percent Distribution of Women by Parity or Number of Children Living, mainland China, Hong Kong and Taiwan R.O.C.

Parity	Urban, Chinghua University staff and workers* 1979		Peiping China mainland Rural, A Brigade Near the City, 1980		Hong Kong, 1976			Yunlin Taiwan, R.O.C. 1952	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)		(8)
0	—	7	—	4	14	4	5	9	4
1	32	37	—	20	23	8	13	17	3
2	45	44	12	28	25	11	14	19	4
3	14	9	21	12	17	15	13	15	4
4	6	2	18	9	11	18	13	13	6
5	3	1	16	7	6	16	13	10	6
6	1	—	12	7	3	13	10	7	11
7	—	—	9	5	1	7	8	4	12
8	—	—	8	5	—	4	5	3	12
9	—	—	3	2	6	2	3	1	13
10+	—	—	1	2	—	2	3	1	25
Total	100	100	100	101	100	100	100	100	100
Mean Family Size	1.8	1.6	4.7	3.3	2.3	4.2	4.1	3.2	7.1
Est. Standard Deviation	.7	.9	2.0	1.4	1.5	2.1	2.4	2.1	3.3
No. 0+ Cases	3260	201	127	380	377850	221990	193560	1007570	736

* Zero families are excluded.

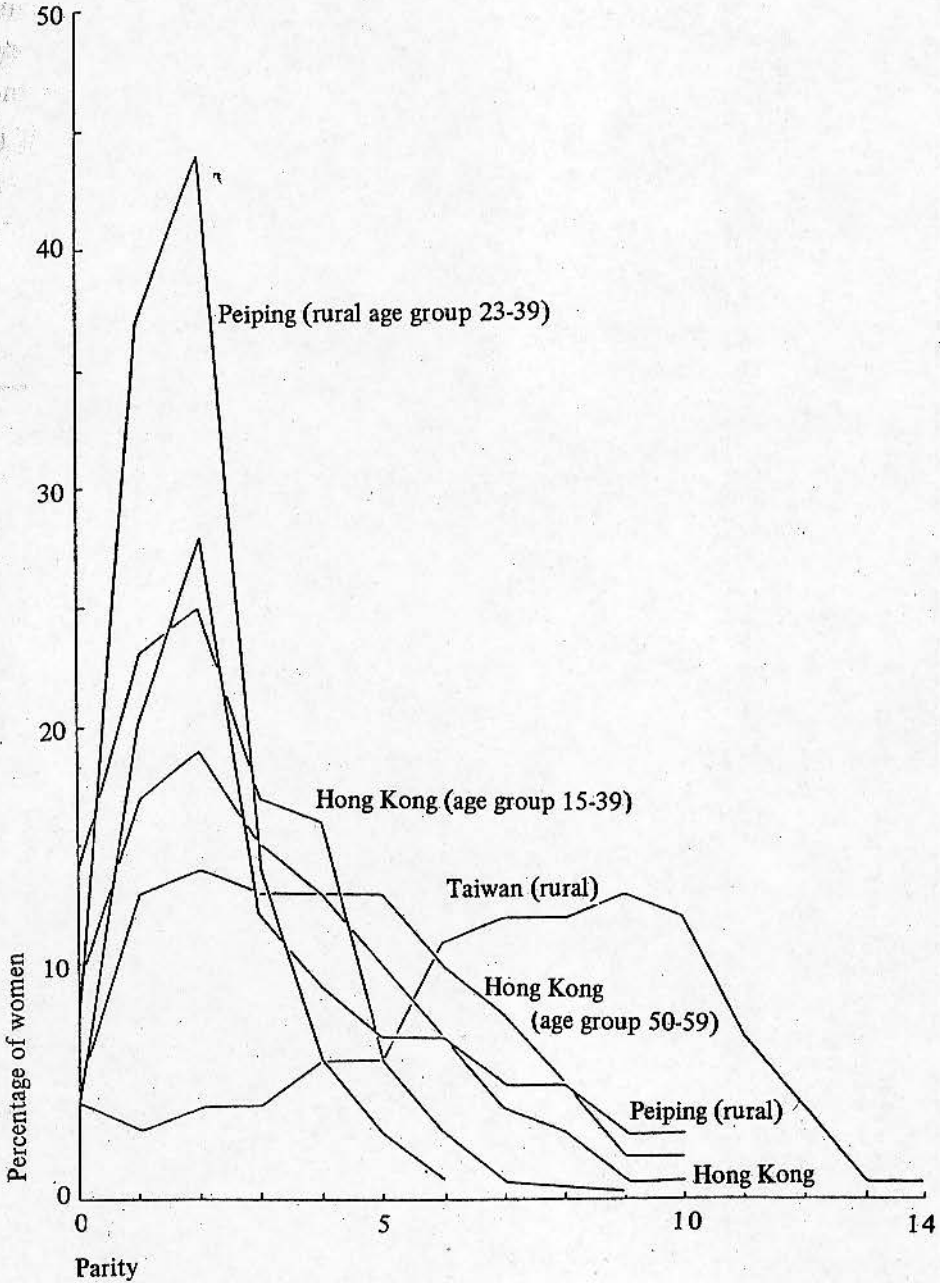
SOURCE:

For Peiping data, See Chi-hsien Tuan, *China's Population and Planned Birth* (Forthcoming).

Hong Kong data are from Hong Kong By-census, 1976, Vol. 2, Hong Kong.

For Taiwan figures, See Chi-hsien Tuan, Reproductive Histories of Chinese Women on Rural Taiwan, *Population Studies*, XII(1), 1958.

Figure 3. Parity Distribution: Rural China, Hong Kong, and Rural Taiwan; mainland China, 1980; Hong Kong, 1975; Taiwan ROC, 1952



But parity fertility statistics is hard to come by. Although planned birth administration in mainland China is carried out at the grass roots level on the basis of parity identification as is evidenced by the current logo: "promote first parity, restrict second parity, eradicate third parity," very little statistics in this regard is available. We have to be less demanding on the matter of data. Table 5 presents a glimpse of what mainland China's parity distribution might look like. Strictly speaking, column 1 is not a complete set of the distribution for it excludes the zero parity, and neither is it a distribution of number of children everborn. It is one by number of children living.

Table 6
Birth Contribution by Each Parity to Total Fertility Rate,
Taiwan ROC and Singapore

	Taiwan ROC %		Singaporean Chinese %
	1975	1979	1975
1	35	34	32
2	27	29	32
3	19	21	19
4	10	9	8
5	5	4	4
6	2	2	2
7	1	1	1
8		1	3
9	1		
Total	100	101	101
TFR	2.8	2.7	2.1

SOURCE:

Taiwan-Fukien Demographic Fact Book 1975 and 1979, Ministry of Interior, Taiwan. Singapore data are from Chen-Tung Chang: Fertility Transition of the Chinese in Singapore, in Lee-Jay Cho and K. Kobayashi, eds., *Fertility Transition of the East Asian Population*, Hawaii, 1979.

In addition to the Chinghwa data we have a parity distribution from a rural brigade near Peiping. These figures are used in comparison with that from Hong Kong (1976), and with the state of natural fertility in Taiwan (1952). Column 9 in Table 5 reflects the general pattern of parity distribution in the state of natural fertility (using Yunlin data, Taiwan 1952). The distribution has a mean of 7.1 with an estimated standard deviation of 3.3. The mode is at parity 9 and the median at 7. When the population changes from natural fertility to a controlled state, the mean declines, so does the standard deviation. Preliminary calculation indicates that a linear relation between the changes of mean and deviation can be established especially between parity 1.5 and 6, and the ratio of the two (σ/μ) varies around 4.65.

In contrast with the natural fertility the Hong Kong pattern for total married women (1976) differs from it considerably. The mean was 3.2 with a standard deviation of 2.1, i.e. the distribution was much more concentrated, about 6/10 of the standard deviation of early Taiwan rural fertility. The mode changed greatly from parity of 9 to 2, with a median at a little over parity 2 as against 7 of Taiwan. The Yunlin data of Taiwan are completed fertility while column 8 for Hong Kong total married women is not. Column 6 and 7 are completed fertility for Hong Kong married women in ages 40-49 and 50-59. These women have been under varying degrees of influence of contraception during their later part of reproductive life. Their fertility was 60% of the Yunlin level and had gone through the process of transition.

For the case of mainland China, the concentration is even more drastic than that of Hong Kong. The rural data for the 23-39 age group are more comparable to those of Hong Kong in ages 15-39 than the Chinghwa data where zero parity is excluded, and parity refers to children living. The mean is 1.6 with a standard deviation of .9 which is less than 1/3 of the natural fertility in Taiwan. The distribution is highly concentrated. The mode falls on parity 2 and the median is a little over 1, which resembles that of similar age groups in Hong Kong (see Figure 3). As a result of the single-child family policy the rural figures of Peiping would not change much and the oncoming younger women's parity distribution is expected to be even more concentrated. If the single-child family norm persists as it did in 1980, the distribution would eventually converge to a binomial distribution with a few cases of natural infertility and spinsters in zero parity, but the great majority would have only one child. It would actually be a univariate distribution where the standard deviation would virtually disappear.

The data from the staff and workers' figures of Chinghua University cover a wide range of age groups. Still it reveals that the figures for the university people (column 1 in Table 5) are virtually similar to those of rural women in age 23-39. If age groups can be sorted out, the mean of the same age group for the university would surely be lower than that of the rural women. Note the range of distribution for the university, it practically ends at parity 5. For Peiping rural women at 23-39, it almost ends at parity 3. The planned birth program means to cut virtually all births in parity two in five years and to keep women at parity 1. This is the hardest battle. Right now, there are 44% of women staying at parity two and 37% at parity one. To keep them where they are is no easy job. And how to make the future mothers stop short at parity one is an issue that deserves much attention especially now that current changes in basic economic policy in agricultural management have given the family some of its old function as a production unit.

For the rural Peiping women in age group 40-59, most of them have undergone, to some extent, through planned birth. Women of the same village in age 60 and over had a mean number of children 6.2, showing that less than 10 years' participation in planned birth, had perhaps cut 25% of the fertility of women in 40-59, and this fertility was just 10% higher than the fertility of urban women in the same age group in Hong Kong.

The figures in Table 5 for Taiwan and Chinese in Singapore are not comparable with that in Table 4. They are given to provide some idea on parity distribution. The two distributions are very similar with heavy concentration in the first parity. Over 80% of total fertility rates for the two societies are in fact contributed by the first three parities.

Data on the distribution of births by parity are particularly useful for comparative analysis of population changes. The data for mainland China given in Table 7 cover only a limited part of the land. They, nevertheless, give us quite a distinct impression of how matters stand there. West District of Peiping is an urban area with a population of 720,000 in 1979. By 1980, the single-child family target was almost fulfilled. The mean birth order was 1.1. Second parity rate was only 14% and multiparity births virtually disappeared. Szechwan is China's largest province where almost 100 million people reside. It is also a province where planned birth has scored remarkable results. The mean parity in 1980, according to partial statistics from 12 cities and districts, was 1.4 which was 12% lower than in 1979. If Szechwan kept a pace half the speed of 1980, by 1985, it could accomplish the single-child family norm as planned. Yantai, a district in Shantung province, has

Table 7
Birth Distribution by Order of Birth (%)

Total	Peiping (West District)		Yantai District		Shantong Province		Szechwan Province		Taiwan ROC		Hong Kong			
	1980	1979	1978	1979	1978	1977	1980	1979	1979	1978	1977	1976	1975	1974
1	86	78	70	62	60	58	70	52	37	36	36	39	40	38
2	14	22	29	34	34	34	23	36	30	31	29	31	27	26
3		1*		4*	6*	9*	7*	12*	20	20	19	15	15	15
4								8	9	9	9	7	8	9
5								3	3	3	4	8**	10**	13**
6								1	1	1	2			
7+								1	1	1	1			
Total	100	100	100	100	100	101	100	100	100	101	100	100	100	100
Mean	1.1	1.2	1.3	1.4	1.5	1.5	1.4	1.6	2.2	2.2	2.2	2.1	2.2	2.4
Standard Deviation	.35	.41	.48	.57	.62	.66	.61	.67	1.24	1.25	1.29	1.23	1.31	1.40

NOTE: 1980 figures for Peiping and Szechwan are statistics for the first half year. Szechwan data refer to 12 districts and cities.

* Include order 3 and over.

** Include order 5 and above.

SOURCES:

Peiping data are from a report by the Peiping Economic College.

Yantai data are from Zhao Chang Xin: Changes Brought About by Planned Birth Work in Yantai District, Renkou Yanjiu, p. 41, 1981, No. 3.

Szechwan data are from Jian Kang Bao, August 17, 1980.

Taiwan figures are from Taiwan-Fukien Demographic Fact Book, 1977, 1978 and 1979.

Hong Kong data from Hong Kong By-Census 1976, Main Report, Vol. 1, p. 41, Hong Kong.

a population of 8.4 million in 1979 of whom 93% were engaged in agricultural activities. Great effort has been made in planned birth work and by 1979, its mean parity was 1.4. Such data, fragmentary as they are, cover a wide range of areas and urban-rural features. They give a vivid picture of how hard the Chinese on the mainland have been working on planned birth. The urban case indicates that the program has succeeded in transforming the multinomial parity distribution into a binomial distribution and the target univariate distribution is emerging from the horizon.

Data on birth distribution by parity from Hong Kong and Taiwan reveal the character of their family planning models. The births distributed over a much wider range of birth orders than that on the mainland, with much less marked concentration. The percentage of first parity birth in Taiwan in 1979 was less than half of that in urban Peiping, while that of Hong Kong was about 60%. Yet over 80-85% of the births in Taiwan and Hong Kong are concentrated in parities 1, 2 and 3. This phenomenon of spreading births over the first three parities should be a morphological distinction between Taiwan and Hong Kong on the one hand, and mainland China on the other hand. Whether China is able to accomplish its goal of a single-child family norm would not affect the final outcome that the distribution of its birth parity will assume a binomial distribution, rather than a multinomial distribution as is the case in Taiwan and Hong Kong. The standard deviation of the birth distribution by parity in Taiwan and Hong Kong is at least twice as big as that on the mainland, and is 3.5 times that of Peiping in 1980. To translate this into more concrete terms, variability of parity is very limited in China as is required by the model of planned birth. The aim is to transform the present birth distribution by parity to a univariate distribution at the first parity with no variability at all in an ideal situation. Percentage by parity of birth is the indicator by means of which the communist gauges its input of efforts in planned birth and measures its success. On the other hand, variability is characteristic to the family planning model where individuals' choice of family size is free to vary, although mean family size may converge to a lower parity level.

OTHER CHARACTERISTICS OF THE MODELS OF FERTILITY TRANSITION

The Question of Mobilization

To recapitulate, the family planning model is basically a voluntary process at each individual's discretion, in which contraceptive acceptors make their own

decision on the need of contraception, the intensity of contraceptive use, the choice of contraceptive means, and generally bear the cost of contraception. In contrast, the planned birth model is a rigid, collective action-program under which all members participate, and every aspect of the contraceptive service is socialized. The planned birth model depends on education, persuasion, and mass political pressure, as well as economic and social incentive, disincentive and punishment; whereas family planning leaves it to the individual to decide whether to accept contraception and how. Therefore, the aim and premises conditioning mobilization and methods differ substantially for the two models. The question as to whether one enlists oneself as a candidate of contraception marks the basic difference between the two broad programs, and can be clearly illustrated in the communication models employed, i.e., the ante facto and ex post facto model. The exhaustive model of ante facto is first concerned with enlightening the otherwise ignorant mind with the necessity of contraception. It is a program to mobilize people prior to their having a clear consciousness of the need for contraception. Such a model makes use of vertical transmission of information (both from the top to bottom and vice versa), and contraceptive service and materials are delivered free at the door step of the contraceptors, especially in the rural commune. The ex post facto model is generally posterior to the candidates consciousness of the need of contraception and takes it for granted that the need prevails. Even under this favorable condition it is still in quest of effective ways of approaching the potential clients in order to mobilize them to accept a lower fertility target. Thus, one must work on oneself to arrive at the decision on the need of contraception. After the decision is made, one must go to obtain the service and applicances. This is clearly attested in records of sterilization collected by the Hong Kong Family Planning Association, shown in Table 8.

An examination of the sources of referral for sterilization in Hong Kong shows that it is generally the clients who seek the information and service, and that this can only happen when the clients are conscious of the need and have made up their own mind to seek this service. In other words, the clinics supply the service upon request. What they can do is present a menu of contraceptives for the clients' choice. They may also go out and approach prospective candidates and persuade them to have a surgical operation, as is the case in mainland China. But this type of persuasion is consultative in nature. Essentially, a family planning model operates on the assumption that there are seekers of contraceptive knowledge and service; the basic function of the program is to facilitate the adoption of

Table 8.
Source of Referral for Sterilization, Hong Kong

Source of Referral	Vasectomy %			Female Sterilization %		
	1979	1978	1977	1979	1978	1977
Family Planning Association	—	1	—	59	62	57
Satisfied Clients	30	43	33	18	16	9
Mass Media	56	48	58	16	15	17
Others	14	8	9	8	7	17
Total	100	100	100	100	100	100
No. of Cases	599	518	528	367	369	219
Mean Age at Operation	35	35	35	34	33	32

SOURCE:

Annual Report, The Family Planning Association of Hong Kong, 1979, 1978, 1977.

effective methods of contraception. Such a model is not very useful when it comes to inducing unconcerned persons to practice birth control. However, attempts are continually being made to improve the motivation of potential users.

As can be seen in Table 8, a high percentage (about 50% of the Hong Kong males obtained their information through the mass media. The individual nature of the communication process is also manifested by the fact that about one third of the vasectomy cases learned of the fact that about one third of the vasectomy cases learned of the information from clients who had the operation earlier.

Most sterilized (about 60%) women were referred to the clinics by the Family Planning Association through participation in its activities. This high percentage reflects at most the capability of the family planning agency to help those who are already aware of their need and proceed to seek contraceptive advice and service. In the final analysis, the family planning agency is without authority and unable to exert any influence on any one disinterested in the service of the agency. In contrast, the socialized planned birth program in China mainland commands a comprehensive authority, and is unavoidable, inescapable, and ubiquitous. In Hong Kong more people seek contraceptive supply from private sources, such

as private doctors and drug stores, or use folk methods rather than from the program sources. They constituted 55% (1977) of the total contraceptive users.

The basic principle underlying the observations noted so far is generally applicable to Taiwan and Singapore, although the forms of manifestation may vary with changing circumstances. The case of Singapore deserves a little more elaboration. The measures taken by the Singapore Government to lower fertility show that they are no more than a model of posterior mobilization. The measures are associated with desirable results, and are definitely favorable to reducing fertility. But it remains to be seen whether they are causes of the continuing decline of fertility. The drop in fertility to below replacement level may be due to the fact that people so desire and consider it advantageous to have small families. This should be the premise that precedes all others. It is not very convincing to state that Singaporeans reduce their family size simply because they are "intimidated" by the need to spend an additional couple of hundred dollars for the maternity cost for a higher parity child, or by the loss of priority in getting better school allocation, and so on. All this may be helpful, but none seems to be critically detrimental, or irresistibly attractive. So the decision remains in the hand of the individuals. This point may be best illustrated in mainland China where taxes and fines, which can be substantial losses, are very heavy for a higher parity child. This may nominally be 10% of the parents' income, but could actually be as high as 30%. Yet some peasant parents, who want a higher parity child are not daunted by the heavy charges, but form collectives and pool the resources of their fellow peasants together to pay fines. The government finally has to resort to mass politics to implement the planned birth program. All laws leak. Restrictive or encouraging laws and fines can be operative only when people care for the losses or gains. They cease to function when people's minds are set otherwise. The major force that contains fertility in Singapore, and Hong Kong and Taiwan as well, lies primarily in the dynamics of socio-economic development, and in the accompanying Westernization of life values, which free people of the incessant need to procreate. The family planning program, implemented under such circumstances, meets the demand, and helps to speed up the pace of birth decline, whereas the strength of mainland China's collective model depends on a political sense of sameness created by socialist equality. When every family is allowed to have only one child, people would not feel that they are discriminated against. This mental state helps greatly in spreading the planned target of reproduction.

Some Features of Controlled Fertility

The practice of contraception in the planned birth program is under the government's initiation, management and supervision. An IUD user cannot have her ring removed without the authorization of the government, and any attempt of this kind will be reprimanded, and the doctor who helps remove it will be sentenced to prison. In the family planning program, as is expected, this is purely a private affair and is left to the user's discretion. For reasons of safety, effectiveness and convenience of management, surgical contraception is adopted in China mainland, while a typical family planning program would provide a wide range of contraceptives for the clients to choose from. Taiwan, however, promotes the use of IUD for the same reasons of safety and effectiveness as in mainland China.

The awareness of family planners in Hong Kong is high, a phenomenon showing the responsiveness of people to the strains of life under metropolitan commercialism. This is demonstrated in the prevalence of contraceptives such as the pill, which need constant care. In 1979, the FPA clinics in Hong Kong recorded that 52% of all their visitors used the pill, with 29% using condoms. There was only 6% of all the clients who were IUD users. The use of the pill was strongly associated with age, and was especially popular with young couples. The other method highly associated with age was sterilization. Over 70% of couples below age 25 preferred the pill, this declined to 20% in ages 40 to 44. All together, about one-third of all contraceptors in 1977 used the pill (see Table 9). On the other hand, the irreversible method of sterilization increased with age. It started with 1% among young couples under age 25, and went over one-third in ages 35 and over (1977). Overall users rate of sterilization improved a little in the five years from 1972 to 1977 amounting to 26%, while pill declined slightly since 1972. Rhythm was also associated with age and made large improvement in popularity; in 1977 its overall rate was 11%, over 80% higher than that of 1972. The use of condom was not related to age, varying within the range of 15% to 20% in the whole span of reproduction. This was a method that made the largest increases during the five-year period from 1972 to 1977. The 1977 overall figure was 18%, scoring a 1.6 times rise over that of the earlier period. The IUD was very unpopular among Hong Kong women, and its use slipped considerably; only 4% of current contraceptors used this method, while five years ago it was 10%. In 1977, 72% of married women in the reproductive period were current users of contraception.

There is no recent detailed information on the use of contraceptives among

Table 9
Methods Used by Current Users by Age, 1972 and 1977

Methods	Year	Age at Survey %						Total	Mean Age
		25-	25-29	30-34	35-39	40-44	45-49		
Pill	1972	71	53	38	30	21	25	36	31.5
	1977	72	46	35	26	20	9	32	30.2
Sterilization	1972	1	11	25	25	34	34	23	39.5
	1977	1	13	29	34	28	42	26	39.3
Condom	1972	10	9	7	5	8	4	7	29.0
	1977	21	21	15	17	17	15	18	34.0
Rhythm	1972	6	8	6	7	3	4	6	28.3
	1977	3	9	11	10	14	12	11	36.4
Spermicide*	1972	4	2	7	8	9	4	8	32.5
	1977	—	5	4	7	9	10	6	39.6
IUD	1972	5	8	8	13	12	13	10	37.4
	1977	—	2	1	5	6	6	4	40.8
Injection	1972	0	2	5	4	4	4	3	35.1
	1977	3	3	3	1	4	5	3	36.4
Others**	1972	2	5	4	8	9	12	7	37.8
	1977	0	1	1	1	2	1	1	32.9

* Including diaphragm.

** Referring to folk methods, e.g. post-coitus douche, and withdrawal, etc.

SOURCE:

K.C. Chan: Family Planning, KAP in Hong Kong 1977, p. 36, The Family Planning Association of Hong Kong.

Singapore Chinese. But the 1973 figures for the total Singaporean population show that 60% of married women in childbearing age were current users of contraception. The metropolitan way of life affects contraceptive preferences. Like that of Hong Kong, the pill was most popular (22%), and the condom ranked second (17%). Tubal ligation was third (11%), and the IUD was unpopular (3%) due to distrust of this method.

In the strategy of contraceptive material supply, Taiwan differs itself from Hong Kong and Singapore. The Republic of China government promotes the use of IUD as on the other side of Taiwan Strait. This alienation with Hong Kong and Singapore or similarity to the mainland is perhaps not accidental and may have a lot to do with the distribution of population. The metropolitan seaport feature of both Hong Kong and Singapore with a population not sizable enable them to have easy access to pill supplies. By 1976, over 52% of married Taiwanese in the age groups 20-44 had had a first insertion of IUD,²⁰ but the current user rate was only 22%. The withdrawal rate is very high. Less than 30% of the accumulated number of women who had had an IUD insertion were continuing users. The continuing rate in 1976 was estimated as 15%. The annual first insertion rate was about 8.2% (1970-1974 average). Unlike that in Hong Kong and Singapore, where IUD played only an insignificant role, over 70% of Taiwan's current contraceptors were using this method in 1976.

It is fortunate that some contraceptive statistics recently became first available from mainland China. This not only provides an opportunity to compare it with other Chinese populations, but especially strengthens our analysis about mainland China's planned birth program. The results are given in Table 10. Before attempting to explore its significance, let us direct our attention first to the derivation of the rates. The denominator is the total number of women in ages 24-44. The starting age of 24 is because the average first age at marriage for rural Chinese women is believed to be above 24. This is useful since there is no overall information on nuptiality in mainland China. However, fragmentary data from Shanghai and Peiping seem to indicate that the percentage of married women in the 24-44 age group may be 90%. For comparative purposes the ratio may be appropriate for one to apply it to arrive at an impression closer to reality if effect of marital status needs to be measured. Second, column 2 in Table 10 is the difference between column 1 and 3, and therefore, should theoretically include all other means of contraceptives than IUD alone. But it is believed that other means, such as pills, are unpopular in mainland China, not only because of official preference for IUD's dependability and convenience for management, but also because of the limited availability of the other methods. Only big cities have a sizeable proportion of women relying on the pill. For example, Shanghai had a current users' rate of 24% for pills (1980). This perhaps is the highest possible rate in mainland China. Even assuming all urban population had a rate as high as Shanghai, it could at most contribute 3 points to the overall users rate. Therefore, they are grouped together,

Table 10
Current Contraceptive Users-Rate, Mainland China and Taiwan

Year	Mainland China			Taiwan-ROC				
	No. of User's Per 100 Women in Ages 24-44	No. of User's Per 100 Married Women in Ages 20-44						
	IUD and Other Means (2)	Tubal Ligation (4)	Vasoligation (5)	Total (6)	IUD (7)	Pill (8)	Condom (9)	Sterilization (Cumulative) (10)
1964				1	1			
1965				5	5			
1966				8	8			
1967				11	11	1		
1968				15	14	1		
1969				16	15	1		
1970				19	16	2	1	
1971	24	3	1	22	17	3	2	
1972	30	6	3	24	19	3	2	
1973	38	10	6	24	19	3	2	
1974	46	13	8	26	20	3	2	1
1975	53	18	10	29	21	3	3	2
1976	72	20	12	31	22	2	3	4
1977	73	24	14					
1978	74	27	15					
1979	74	31	18					

Blank unavailable.

- Below 0.5%.

For pill current users' rates, the numerators are calculated by dividing the yearly number of cycles with 13. For condom current users' rates, the numerators are calculated by dividing the annual dozens of 8, as 8 dozens are needed for the use of a year. For reasons of the adjustment see the source book. Note, if we apply 90% effectiveness rate to IUD, all are effective current contraceptive users rates.

SOURCES:

For mainland China, see Chi-hisen Tuan, China's Population in Perspective.
For Taiwan, numerators are from Exploring Our Country's Population Policy and Population Planning, p. 208. For denominators, see T.H. Sun and Y.L. Soong, "On Its Way to Zero Growth: Fertility Transition in Taiwan, Republic of China", in Lee-Jay Cho and Kazumasa Kobayashi, eds., *Fertility Transition of the East-Asian Populations*, Hawaii, 1979.

and treated indiscriminately, as the IUD users' rate. This is by all means only expedient in view of the difficulty that it cannot be broken down into more detailed categories.

IUD has been the major means of contraception in mainland China.²¹ Its speedy spread has brought mainland China's fertility under tight control. Its use developed swiftly with an average annual new insertion rate of 12% (1975-1979). This is about 60% higher than Taiwan's first insertion rate (giving due allowance to the effect of marital status). This is not all, for the discontinuing rate in Taiwan is also higher than mainland China. Removal of IUD on the mainland is usually done when the safety life of IUD is expired, while in Taiwan it is done at the individuals' indiscretion. The length of time of IUD in use is estimated as five years in China against three years for Taiwan, giving another 67% higher utility over Taiwan. In other words, in term of effectiveness, every one insertion of IUD on the mainland is equivalent to 1.67 insertions in Taiwan. Adding the faster growth rate of first insertion rate, mainland China moves 2.2 times swifter than Taiwan in the IUD program. In 1975, over half of mainland China's reproductive married women used IUDs.

However, the current users' rate of IUD, after reaching the zenith of 53% in 1975, began to decline. By 1979, it dropped to 43%, while IUD users' rate slipped over time, sterilization picked up speed rapidly. By 1979, the cumulative rate of sterilization accounted 40% of all the contraceptives used, reaching the current users rate of 31%. Giving allowance to marital status, Taiwan's level of sterilization in 1976 was less than one-fifth of the corresponding rate of the mainlanders. Adjusting the mainlanders' sterilization rate to the same basis as that of Hong Kong, the two had the same rate in 1977.

Giving allowance to marital status, mainland China's current contraceptive user's rate for married women 24-44 might be 82% in 1979. Dorothy Nortman and Ellen Hofstatter reported that the same rate for Hong Kong is 79% (for married women 15-44). This may be contrasted with mainland China in view of the fertility level and the effectiveness of contraceptives used (the effectiveness of the pill, popular in Hong Kong, is 22% less than IUD, popular in China mainland). Their figure for Singapore in 1978 was 71% for married women in the 15-44 age group with 22% sterilization.

But the comparability of these rates remains ambiguous. If we use Taiwan's standard of effectiveness of various contraceptives and apply the respective weight, accordingly, an index that not only indicates the coverage of contraceptive uses

but also creates a sense of efficacy, can be derived, i.e., the efficiency for IUDs is 90%, the pill-70%, the condom-80% and sterilization-100%. We get an effective current contraceptive users rate of 70% (or 78% for married women in the 24-44 age group) in 1979 for mainland China; it was 29% for Taiwan in 1976. According to Nortman and Hofstatter,²² whose figures are much higher than my calculation, Taiwan's rate in 1979 was 54% (40% for 1977). Hong Kong's problem arises from the fact that there is a considerable portion of current contraceptive users adopting means other than what we listed here (38% in 1979). If we assign an arbitrary figure, say 80% as an expedient, we can get an approximate idea for comparison. The Singaporean Chinese pose an additional trouble since no separate figures are available for this ethnic group; we therefore have to employ its figure for total population. We get a rate of 64% for Hong Kong (1979), and 69% for Singapore (1978).

This shows that China's effective contraceptive users rate is definitely higher than all the other three Chinese populations, although China's planned birth started to spread contraception over the vast area of rural communes only ten years ago. Mainland China's rate is about 10% higher than that of Singapore, about 20% higher than Hong Kong, and may at least be 50% higher than that in Taiwan.

There is no information on the demographic characteristics of contraceptive users in the mainland. But Taiwan and Hong Kong provide some statistics in this regard. The overall age of first insertion of IUD for married Taiwanese women in the reproductive period shows a slight downward trend; it was 33 in 1964, and went down to 31 seven years later. Hong Kong's figures show a rising trend; in 1979, the mean age at IUD insertion was 33, the same as Taiwan in 1964, while in 1974 it was 31, showing that Hong Kong women, though shifted to an older age, and took earlier action than that in Taiwan. The slight rising trend may be associated with the slow upward movement of marriage age.

The Hong Kong data show that the choice of contraceptive is associated with age. Pill users are younger, and the mean age is very stable. The average age of 25 hardly changes over time. The mean age of sterilization is the highest (see table 3). Men's age at vasectomy is stabilized at 35, while women's age at sterilization is rising. It was 32 in 1977, and in three years, it rose by two years.

The age association with the efficiency of contraceptive means is linearly functional with the family size. Pill users are people who have not reached their target family size and aim at postponing its fulfillment. The average size of family for Hong Kong pill users was less than 1 in 1979. In 1977, it was 1 while the ideal

family size for married women under 25 was 2.1. IUD users had a higher mean age and were 8 years older than pill users in 1979, during which the women had fulfilled their desired size of family. So what they look for is a more reliable and effective means of contraception for limiting purpose. Many more Hong Kong women consider IUDs troublesome and prefer the once-for-all measure of sterilization.

Taiwan has information on the age distribution and IUD acceptors as shown in Table 11. This age distribution was symmetrical; and the mean and median almost coincided at age 33 before 1967, and differed less than a year after 1968. The mean age declined slightly in eight year, it dropped 1.8 years, averaging 2.7 months reduction per year. This is very interesting for this tendency is different from that in Hong Kong where the mean age rose by 2.5 months a year. In the meantime, the family size of IUD adoptors in Taiwan and Hong Kong all dropped—a general tendency of both areas in recent times. This seems to indicate that changes in family size do not bear impact on the changes of the mean ages of IUD adoptors. Taiwan's experiences show the decline of mean age is due to more and more younger women adopting IUDs. In 1964 only 32% of IUD adoptors were from women under age 30, but in 1971, it was 48%. The increasing use of the IUD among young women is certainly a result of the government's preference and efforts to popularize IUD use. There is no data on the age distribution of IUD adoptors in Hong

Table 11
Clinic Records of Mean Ages for Use of Contraceptives, Hong Kong.

Year	Pill		IUD		Other Methods		All Methods	
	Mean Age	No. of Children	Mean Age	No. of Children	Mean Age	No. of Children	Mean Age	No. of Children
1974	25.4	1.5	31.3	3.2	27.9	1.7	26.1	1.7
1975	25.4	1.2	32.0	3.1	28.3	1.4	26.3	1.4
1976	25.2	1.1	32.9	2.8	27.9	1.7	26.3	1.3
1977	25.1	1.0	32.9	2.7	27.8	1.6	26.3	1.3
1978	25.1	.9	33.1	2.5	27.9	1.5	26.4	1.2
1979	25.3	.9	32.9	2.4	28.4	1.5	26.7	1.2

SOURCE: Annual Report. The Family Planning of Hong Kong.

Kong. Note, Table 9 shows average age for the IUD user. But this is current users' mean age and is not the mean age at the time of IUD insertion. So it is not comparable to what is given in Table 12. The comparable one is given in Table 11. But its rising age certainly is contrary to what is in Taiwan, although the extent is limited, and IUD is insignificant in Hong Kong.

Taiwan's age-specific experience in IUD may bear significance to what is happening on mainland China, where the government is more energetic in spreading IUDs. There may also be a declining tendency in mean age of IUD insertion with probably a much faster pace. Judging in the light of total fertility rate, the mean age of IUD insertion in 1975 would be about 32. By 1980, the mean age might have dropped to near 29.

As we have said fertility control is essentially an adjustment of parity. Fertility transition is in the main a transition of parity. The purpose of contraception is either to space or stop childbearing. This is actually a function of age and parity. Young people practice contraception generally to delay birth while older people do so to avoid childbearing. Taiwan's data show that in 1971, one-fifth of contraceptors were spacing and 80% were stopping birth. This varies with the number of children living shown in Table 13. The percentages for spacing purposes seem to coincide with those of parity 1 and 2. In general those IUD adoptors who had two or fewer children practiced contraception for spacing reasons, while those with three or more children, did so to stop having children. If this is applicable to all the contraceptors, it seems to indicate that the actual desired family size is somewhere near two although, when questioned, women invariably gave a higher figure as ideal family size so as to be consistent with their actual number of living children. For these women, to state that the desired family size is smaller than the actual family size is like putting a curse on the extra child or children. The reason why their actual number of children was more than they really desired might be that were interruptions in contraception, ineffective methods, or lack of skill in the use of methods. An unwanted pregnancy is not easily reversible because abortion is illegal in Taiwan, although it is estimated that among married women in age group 20-44, 25% had ever experienced abortion.²³

The relationship between age and purpose of contraception is illustrated by the Hong Kong data. Women practicing contraception for spacing purposes formed 7% of the total married women in the reproductive span in 1972, and rose to 10% in 1977. The mean age was relatively stable at age 26-27 in the five years from 1972 to 1977. It is interesting to note that the mean age was not much

different from that of women who were not practicing contraception because they wanted a child. The latter's mean age was 27, and it was the same in 1972 as in 1977. The proportion of women in this category changed considerably in five years, from 18% in 1972 to 11% in 1977, which was about the same level as the number of contraceptors who were spacing birth in 1977. This means that age 27 is the watershed where 11% (1977) of women went on fulfilling their birth target while about an equal number began practicing contraception for spacing, with a mean number of children ever born about two for 1972 and 1.7 for 1977.

In 1977, 40% of married women in the childbearing period in Hong Kong practiced contraception for limiting purpose as against 30% for 1972. Their mean age was 36 for the two years. By then they had born about 3.2 (1972) and 2.8 (1977) births, respectively, which were close to their final family size. Although there was no change in the mean age of contraceptors for limiting purpose, in five years from 1972 to 1977, the level rose by one-third. The increase spread over the whole range of childbearing years. But the increases of younger contraceptors rose much more than the older ones. The percentage of contraceptors under age 25 for limiting purpose increased 100%, while those in the 25-29 age group rose by 55%. As fertility is declining, more and more young women will practice contraception for limiting purpose. This is especially in contrast with the fact that the percentage practicing contraception for spacing purpose is low.

The age-specific contraception practice rates for Hong Kong and Taiwan are shown in Table 15. The levels appear very high, but we do not know how effective contraceptive practices are. The situation is particularly serious in Hong Kong where the popular contraceptives are pills and condoms. These methods, when persistently applied, can be very effective. But their use require a high degree of regularity and persistence. So in spite of a superior practice rate than Taiwan, Hong Kong's age-specific fertility rates for age 30 and over are higher than Taiwan. K'C. Chan suggests that this is not only due to inefficiency of means employed but especially due to availability of abortion;²⁴ for abortion is also illegal in Hong Kong. Singapore's case may be illuminating here. In 1974, abortion was liberalized in Singapore to make it obtainable on demand. And that its fertility level for the higher age groups is similar to that of Taiwan (see Table 15) seems to suggest that abortion had been employed in Taiwan to do away with unwanted pregnancies. While this may be plausible, as there is evidence showing that 25% of Taiwanese women aged 20-44 had undergone abortion, the question remains to be clarified. For, if the people of Hong Kong could not have the legal, convenient, and economic

Table 13
 Percentage Distribution of IUD Acceptors by Number of Children Living,
 Taiwan ROC

No. of Living Children	1964	1965	1966	1967	1968	1969	1970	1971	Number	%
0	.1	.3	.2	.1	.1	.2	.2	.2	1525	.2
1	1.7	2.3	3.1	3.1	3.9	4.7	5.2	6.6	37892	4.2
2	9.2	10.7	12.6	13.4	15.2	16.4	17.3	19.5	136611	15.1
3	20.7	21.4	22.9	24.3	25.5	27.2	28.1	28.4	230488	25.6
4	25.6	25.0	24.8	25.0	24.5	23.9	23.8	22.7	218278	24.2
5	19.4	18.8	17.2	16.5	15.2	14.2	13.4	12.2	137378	15.2
6+	23.3	21.5	19.2	17.7	15.6	13.4	12.0	10.6	140041	15.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	902213*	100.0
Mean No. of Living Children	4.4	4.3	4.2	4.1	3.9	3.8	3.7	3.6		3.9
Purpose of Acceptance										
Spacing			15.8	15.1	16.9	18.3	19.5	20.6		
Stopping			84.2	84.9	83.1	81.7	80.5	79.6		

* Excluding 28852 cases whose parity is unknown.

SOURCE:

T.H. Sun, The Impact on Fertility of Taiwan's Family Planning Program, in C. Chandrasekaran et al., ed., *Measuring The Effect of Family Planning Programs on Fertility*, p. 440. IUSSP, Belgium.

Table 14
Purpose of Practicing Contraception by Age of Respondents, Hong Kong, 1972 and 1977

		Age at Survey (%)					Mean (%)	Mean Age
		25-	25-29	30-34	35-39	40-44		
Infertile Women*	1972	1	5	18	22	35	57	41.8
	1977	1	10	25	30	28	50	40.3
Women Practicing For	Spacing	22	19	6	1	1	0	26.4
		25	24	8	5	0	0	26.9
	Limiting	12	22	38	45	35	18	36.1
		24	34	46	52	57	26	35.9
	Unknown	1	3	1	2	-	1	32.5
		6	5	5	2	1	0	29.1
Women Not Practicing	Wanting More Children	55	38	21	10	2	1	27.3
	Wanting No More Children	36	22	11	4	1	1	26.8
	Unknown	6	11	13	17	25	21	38.3
		5	4	4	7	13	24	40.5
		3	2	2	3	1	1	32.5
		3	0	1	0	1	0	29.5
Total = 100%	Number of Women	265	370	323	482	430	40	2270
		159	321	264	224	278	304	1550

* Including those sterilized.

SOURCE:

K.C. Chan. Family Planning, Knowledge, Attitude and Practice in Hong Kong 1977, p. 42. Hong Kong Family Planning Association.

Table 15
Age-Specific Contraception Practice Rate, Hong Kong and Taiwan, ROC.

Age	Hong Kong 1975		Taiwan ROC 1976		Age-Specific Fertility Rate %		
	%	Hong Kong 1977 Rate %	% Distribution of Current Contraceptive Users	Taiwan ROC 1976 %	Hong Kong 1977	Taiwan 1976	Chinese in Singapore
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
15-19	—	57	1	19-28	17	38	17
20-24	43	57	8	19-28	110	213	110
25-29	82	73	21	55	192	241	163
30-34	84	84	20	76	120	87	98
35-39	66	88	18	79	49	28	34
40-44	55	80	20	—	5	8	8
45-49	27	49	13	—	2	2	2
Overall Practice Rate or Total	60	72	101	50-53*	2.5	3.1	2.1

NOTE: Column 3 is derived by applying column 2 to age distribution of married women in the sample.
* unweighted average.

SOURCES:

Column 1, from K.C. Chan et al., Family Provisions and Attitudes, p. 36, 1975.
Column 2, 4, 5, 6 and 7 are from K.C. Chan, Family Planning, Knowledge, Attitude and Practice Hong Kong, 1977, p. 63. The Family Planning Association.
Column 7, from Chen-Tung Chang, Fertility Transition of the Chinese in Singapore, in Lee-Jay Cho and K. Kobayashi's book, p. 228, Hawaii, 1979.

service if abortion, and the underground market is in tighter control than Taiwan, it is accessible to them at a little, over a stone's throw distance. Just across the border on the mainland, cheap, reliable and safe service of abortion is available to people from Hong Kong. It is a facility that some Hong Kong women have made use of although the extent of its use is hard to gauge.

Problems may also arise over measurement issues. The above evidence shows that there are doubts as to the comparability of different contraceptive practice rates. According to data of T.H. Sun et al, shown in column 4, Table 15, the overall practice rate was about 50-53%, which is over 60% higher than that given in Table 10 for 1976. This is due to the fact that Table 10 is calculated on the basis of 12 months of effective use in a year (except IUD, which, if multiplied by 90%, would give the annual effective rate). While column 4, and columns 1 and 3 as well, is counted on the person basis—a woman who gave a positive answer was considered as a contraceptive user, irrespective of the efficiency of means and whether she persisted throughout the year.

In spite of all these difficulties, the situation does show that Hong Kong and Taiwan do not possess a complete set of measures to prevent unwanted pregnancies. The problem is primarily due to the lack of follow-up measures in the event of a failure. This is a point of interest as it reflects the characteristics of the evolutionary model of family planning. The model starts from a preventive goal without considering all aspects of birth control. When the preventive measures fail, there is no reversal of it. Seeing the need to complement the imperfection of the preventive model of family planning, the Singapore government adopted in 1974 abortion as a means to terminate unwanted pregnancies. And Taiwan is contemplating on easing of the inflexible attitude toward induce abortion. Hong Kong began in 1972 to allow abortion but not for birth control purposes. This is a sharp contrast to that on mainland China, where the planned birth program depends to a large extent on abortion as a method of birth control. As soon as the planned birth program was adopted in the late 1950s, abortion was accepted as a legal means to end an unwanted pregnancy. Today, the concept of planned birth has been well developed, there is no sign showing any decline in the importance of abortion, although the public do not desire it. Abortions are on the rise. The ration of abortions to live births was usually around .25 in the years 1971 to 1977. It was .35 in 1978 and .40 in 1979. Abortion is an integral part of the planned birth activities. Without abortion, the birth planning program has a large loophole. In the family planning programs, of Taiwan and Hong Kong, this is still left open.

Table 16

Current Practice Rate by Parity, Hong Kong, 1977.

Parity	Practice Rate (P/O)
0	24
1	63
2	80
3	84
4	77
5+	72
All	72

SOURCE:

K.C. Chan. Family Planning. Knowledge, Attitude and Practice in Hong Kong 1977, p.35. Family Planning Association of Hong Kong.

Singapore has closed it for the benefit if the family planners. And China has long made it a part of planned birth since the beginning of the programs.

Current practice rate changes with parity, as we have said earlier, birth control is essentially parity control. For planned birth in mainland China, this is a public issue under the tight reign of the government. The government sets up the target (two children before 1978, and only one child since 1979) and takes action to enforce it. Planning birth works in many ways, similar to what is common in engineering. This social engineering effect of the program is reflected in the parity distribution of births in Table 7. Preventive contraception together with curative abortion has clearly stopped higher parity mothers from childbearing. But the family planning model is too closely dependent on the changing pattern of individual family size preferences. On the other hand, it is associated with the efficacy of contraceptive means used, and the government attitude on induce abortion for birth control purposes. The data from Hong Kong provide a glimpse of the pattern of contraceptive use by parity as is shown in Table 16. One-fourth of all the married women at zero parity were current users in 1977. Most of these women must be practicing contraception for spacing purpose. The rate for parity one rose to 63%, 2.6 times that of parity zero. This was likely to be mixed group, where some were practicing birth control for spacing, others for limiting. By second parity, most

of the 80% women practicing contraception must be doing so for limiting purposes as final family size is approached. For parities third and over, very few contraceptors were attempting to space birth. The decline of current practice rate at parity four and over should not be thought of as unreasonable, as higher parity is associated with older age, and older age is associated with natural infertility.

Finally, it must be pointed out that mainland China's planned birth is an exhaustive model with universal participation irrespective on one's social stratum, economic condition, urban and rural residence, and education; the only exceptions are for some of the national minorities. It is also very interesting to note that in Taiwan, Hong Kong and Singapore, family planning is accessible to almost all of the population. Various important social factors do have some influence on the effort to control fertility behavior, but the influence is likely to be limited. The situation is so well under control that it can be stated as the most important feature for the success of the Chinese birth control programs.

CONCLUSION

There is no doubt that the four Chinese populations have been undergoing profound transformation in their reproductive behaviors at a rapid pace and immense scale. All social strata are involved in the adjustment of fertility and among Chinese population virtually no one is unaffected in the massive drive to overcome the problem of natural increase. In a short span of some twenty years, the Chinese in Singapore have brought their total fertility rate below replacement level with Hong Kong fast approaching the mark. Taiwan has made substantial progress in birth control but is lingering at a little distance off the entrance to replacement. The transition of the three areas is generally consistent with the experiences accumulated in other countries. This takes place as a result of or concurrent with development and modernization.

A rare achievement has been made on mainland China. In about ten years, mainland China has brought fertility from its traditional high plateau to below replacement. The fact that she scored this unprecedented achievement under conditions which has since been thought of as not conducive to birth control is worth special notice. It provides a fresh piece of evidence in the history of population development. China mainland has the largest population and an ancient history. Her experience is by no means a special episode of limited significance. All the major problems commonly associated with countries which experience an acute population problem are found in mainland China. She is far from being

developed, per capita income is among the lowest in the world, and agricultural activities tied down 87% of its total population. Yet, mainland China's experience shows that all these can be overcome and birth control can be spread under these most difficult conditions. This gives hope to a world where two-thirds of its population are virtually faced with the same problems of under-development. The clear message from the success is that the most difficult population problem can be resolved without prerequisite of development demanded by the family planning model.

Mainland China's experience has not only given an answer to the global population problems but sets a challenge to the rest of the world that does not seem to have comprehended what have taken place inside China mainland. Indeed, to the outside, there is a communication gap in understanding the Chinese attack of this vital problem.

Three hundred years of incessant population growth has rendered the demographic situation of Chinese population different from that of other countries. There is no ready measure to handle a problem that has been accumulated over an extended period of history. The remedy can only be found in politics; for politics seems to be the only means capable of meeting the most serious problems. Mainland China's path to rapid socialization seems to be deeply entangled in and unconsciously triggered at the solution of population problems of three hundred years standing. The 1949 Revolution provided the necessary conditions to resolving the issue. Population has been declared as a problem of strategical importance to the country. And the priority of the issue is also reflected in organizational set-up not only from the central government to the grassroot offices, but also to every unit of work. Planned birth has been made in the charge of every office, every workshop, every production team, every street committee, and every concerned member of society. The universal concern over population and exhaustive participation in planned birth have created something which can only be termed as the mass politics of demography. It is this mass politics that harmonizes people with regard to the creation of a planned birth consensus, mobilizes participation, and generally makes sure that the planned birth targets are fulfilled. Incentives, disincentives, and punishments are helpful but they are all limited, in their respective role, since they are all but a game of choice. When people do not care much about punishment, no matter how serious it may be, the punishment will fail to fulfil its goal. Therefore, laws and regulations are necessary, but they cannot be relied on as the sole agent for the enforcement of planned birth. In the final analysis, planned birth

depends on mass politics, i.e. education, persuasion and mass pressure in individuals who attempt to digress from the general guideline of planned birth. Many people are willing to play the game defined by law at their own losses, but they would think twice in the face of mass criticism, for a sense of collectivism makes one involved in the common lot of the society and a harmonized relation with other members of the society is vital to one's wellbeing and status. A sense of sameness created by socialist egalitarianism in a way calms the people. If every family has only one child, all the other families would know that they are in the same boat. No one would feel that he is discriminated and faces a threat specific only to himself. The national concern with population and the treatment of population as an issue of first importance not only declare the urgency of the problem but also create a sense of honor for people who act in accordance with the government plan, and a sense of guilt for those who attempt to digress.

The collective nature of mass politics require total mobilization of the nation. It is unprecedented, so it may be incomprehensible to people who seldomly have access to the special and often specious complexities of Chinese affairs and history. Yet it holds the key to the mystery of how China solves its mammoth population problem. The problem is extraordinary and the measures are unusual. It shows the deployment of mass politics is not a matter of preference; it is inevitable. This is a response to the result of historical accumulation. Population problems, created by the historical imbalance between scarcity of resources and the unlimited capacity of human growth, have long been troubling the country. The search for a way to its solution is much twisted and round about. Generally, China had spent at least over a hundred years in the search for the minimum conditions for its solution. The institutional shift, the establishment of a powerful government, and a well-organized society are the three minimum necessary conditions for the solution of the problem. After these conditions became available on mainland China in 1949, some ten more years were needed to evolve a proper cognition of the issue. It is well known that the notion of population problem had scarcely any place in the socialist doctrine. But the inadequacy or ignorance of a theory is no refutation of the fact. Ultimately, it is the reality that selects theories not vice versa, and even the most stubborn Chinese doctrinaires could resist the plain fact only very briefly and faintly. Another ten years were taken for the preparation of the necessary details to organize a national plan for mass action. Then planned birth, in the form of politics, was put forward before the people and the nation was called into action. Politics and organization are perhaps the only means powerful enough

to deal with such a tenacious problem. In the face of an enormous base population with a growing momentum of increase hundreds of times what it used to be historically, socializing fertility is more an inevitability than an expedient specific only to mainland China. The planned birth program is mainland China's response to the historical demand for birth control, and the single-child family policy tolls the end of the traditional institution of reproduction which was private and individual in nature, and proclaims the establishment of a reproductive institution of socialized fertility under public supervision and management.

The socialization of fertility turns demography in mainland China into a branch of knowledge similar to engineering. This has been amply demonstrated and contrasted with the various family planning models. The collective model of planned birth starts the program from the collective to the individual who is guided by and conforms with the collective criteria of planned fertility, whereas family planning program directs its attention at the individual, then aggregates individual behavior to assess its likely effect upon the collective. This distinguishes the collective model as one that puts the public interest before individual and imposing plans on its constituent members, while in the family planning model, the collective is dependent on how its members plan their families. Planned birth depends on a vertical mobilization from top to bottom. People are educated and persuaded for the necessity of planned birth. Birth target is allocated to individuals and all contraceptive means and services are supplied by the government free of charge. Family planning depends on the condition that people are conscious of their need to limiting fertility, and provides the people with facilities and services of contraception at the expense of the clients. In other words, family planning is dependent on the level of socio-economic development to mobilize people individually to seek contraception.

In addition to numerous differences between the two broad categories of birth planning, one point deserves special attention. This concerns the aim of the program as well as the stress on means for its implementation. Briefly speaking, family planning is a loose model aiming at a continuous reduction of total fertility rate to, say, replacement level. The model possesses virtually no power to manipulate the course of fertility change. Whether fertility lingers or keeps declining is at the unknown will of the population. Hong Kong and Taiwan are hoping to bring fertility down to replacement, but Singapore, where it has fallen below the replacement level, does not know where it should be stabilized and how. Actually fertility moves rather independently of the subjective wish of family

planning officers, and the society as a whole can hardly be said to be conscious of what its needs are and how to have them fulfilled.

But the aim of planned birth on mainland China differs from the above cases substantially. Let us first give a glimpse of how matters stand there. By 1978, when mainland China's fertility approached the door to replacement level, projection shows that even at the total fertility rate level of 2.3 in 1978 population will keep growing to 2.1 billion, a doubling of size in 100 years. This is half the world population of today – an austere threat to mainland China's ambition to modernize the country. At the total fertility rate level of 2, the population would keep growing for 70 more years and hit a maximum size of 1.53 billion which is more than 50% higher than its population in 1980. Even at the single-child level, the momentum would keep the population growing for 25 years and reach a maximum size of 1,054 million. In other words, the natural increase rate is the major concern of China mainland, and the aim is to keep it at a level as low as possible.

The problem has arisen because of the momentum of population. The single-child policy is designed to reach zero growth rate at the soonest possible time. By maintaining the single-child family for a span of some twenty years, mainland China hopes to avoid the growth momentum by reducing the future reproductive age groups to half of their parents' size so that the population finally replaces itself at the reduced scale. This implies that total population would finally settle at a size of 650 to 700 million. In other words, what mainland China is striving at is not merely a population transition in its conventional sense as popularly conceived by most demographers of western training, it intends to reshape the course of population in a manner most advantageous to the future generations. To do this, mainland China has made its demography into a discipline of social engineering, and aims at reconstructing the mode of population movement. This aim is entirely novel and positive.

This operation represents the most ambitious attempt in ridding the society of the blindness of population growth. If successful, it would bear an immense impact on the destiny of the human race. The operation is extensive; the price is great; the challenge is unprecedented; and, the expectation is attractive. But, regardless of what outcome may finally turn up, the effort of mainland Chinese demographers may have ushered in a new era – an era in which population development should be made into a positive contributor of human progress rather than its customary function that exacts on us to adapt to its order of anarchist course. Mainland China has given to the world new theories in two basic modes of human

6. Workpoint is the unit of measurement of the quantity and quality of one's work in a day. Collective income distribution is based on the total amount of workpoints one earned in the commune. A system having been practiced for 25 years, it is now undergoing significant changes.
7. Although a final appraisal of the validity of mainland China's data remains to be done, preliminary analysis does not lend strength to the more skeptical views, except for the years 1958 to 1962. Detailed information on vital statistics for the period may eventually be released. See Chi-hsien Tuan: *China's Population and Planned Birth* (forthcoming).
8. A report on August 9, 1981 (Ta Kung-Pao, American Edition) described how an old man committed suicide because the Hong Kong Government Housing Administration asked him to move from a larger living quarters to a smaller one.
9. But we are not going into the details as they have been documented elsewhere. See, for example, Lee-Jay Cho and Kazumasa Kobayoshi, eds., *Fertility Transition of Eastern Asian Populations*, Hawaii, 1979, for a description of the specific areas. For Taiwan, see also *Wo Guo Ren Kou Zhengce Yu Renkou Jihua Zhi Tantaoy*, by T.H. Sun et al., Executive Yuan 1979. For Singapore, see P.S.J. Chen and J.T. Fawcett: *Public Policy and Population Change in Singapore*, The Population Council, 1979, and C.T. Chang: *Fertility Transition in Singapore*, Singapore, 1974.
10. See for example, Analey J. Coale: *The Demographic Transition in Lee-Jay Cho and Kazumasa Kobayoshi, eds., Fertility Transition of East Asian Populations*, Hawaii, 1979.
11. This general statement should be supplemented by the possibility that the government public housing program may have the effect of raising fertility. The size of flat unit is allocated proportionately to family size, and thus encourages some people to have more children in order to be eligible for larger flat space.
12. See *Exploring Our Country's Population Policy and Population Planning*, (Woguo Renkou Zhengce Yu Renkou Jihua Zhi Tantaoy), p. 199, 1979.
13. See Chen Muhua: *Developing Population Science and Making it Serve the Goal of Controlling Population Growth*. *Renkou Janjiu*, pp. 1-2, 1981, No. 3.
14. A brief introduction is given by Chi-hsien Tuan: *China's Population in Perspective*, in Harrison Brown, ed., *China and the Nations of the Pacific*, Boulder, Colorado: Westview Press, forthcoming. A more detailed explanation is given by Chi-hsien Tuan: *China's Population and Planned Birth*. For those who read Chinese, please refer to a Chinese journal: *System Engineering and Scientific Management*, 1980, No. 2.
15. See Jian Kang Bao, December 25, 1980, and Chen Ta: *Population in Modern China*, p. 42. The University of Chicago Press, 1946.
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17. See, for example, *Ming Pao Daily News*, September 1, 1981, American edition.
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各種生育計劃措施下中國海內外 人口生育行爲之演變

(中文摘要)

段 紀 憲

近二、三十年來中國海內外人口之生育行爲正以急遽的步調作重大的演變，自由中國、新加坡及香港的中國人口都在快速經濟發展及現代化的影響下，將生育水準調節到維持人口穩定滋生的狀況，中國大陸上的人口却在生育社會化的集體計劃模式下，強制實行「一胎化」的人口政策。本文將這些不同生育計劃的特質、施行方法及過程，以及對社會、經濟及人口質量的影響作了詳盡深入而客觀的比較分析，以冀其分析結果作為開發中國家解決其人口膨脹問題之基本參考。