

Zeng Yi; Xiaoli, Li; Zhongdong, Ma

**Working Paper**

## The trend and the model schedule of leaving the parental home after marriage in China

Center Discussion Paper, No. 616

**Provided in Cooperation with:**

Yale University, Economic Growth Center (EGC)

*Suggested Citation:* Zeng Yi; Xiaoli, Li; Zhongdong, Ma (1990) : The trend and the model schedule of leaving the parental home after marriage in China, Center Discussion Paper, No. 616, Yale University, Economic Growth Center, New Haven, CT

This Version is available at:

<https://hdl.handle.net/10419/160538>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

ECONOMIC GROWTH CENTER

YALE UNIVERSITY

Box 1987, Yale Station  
New Haven, Connecticut 06520

CENTER DISCUSSION PAPER NO. 616

THE TREND AND THE MODEL SCHEDULE OF LEAVING

THE PARENTAL HOME AFTER MARRIAGE IN CHINA

Zeng Yi  
Yale University and Peking University

Li Xiaoli  
Peking University

Ma Zhongdong  
McMaster University

September 1990

Notes: Center Discussion Papers are preliminary materials circulated to stimulate discussion and critical comments.

#### Notes:

A very early version of the outline of this paper was presented at the "International Seminar on China's In-Depth Fertility Surveys," February, 1990 in Beijing, jointly organized by the State Statistical Bureau of China and the Research Center of the International Statistical Institute.

The research was strengthened and the paper was revised while Zeng Yi was a Yale Visiting Research Scholar at the Economic Growth Center of Yale University in May, 1990. Zeng Yi's visiting research at Yale was supported by a grant from the Rockefeller Foundation.

Zeng Yi is Professor of Demography at the Institute of Population Research, Peking University, Beijing, China, 100871.

Li Xiaoli is a Ph.D. student at Peking University.

Ma Zhongdong is formerly a graduate student at Peking University and currently a Ph.D. student at McMaster University.

#### Acknowledgements:

The authors wish to thank the State Statistical Bureau of China for providing the data tapes of the In-Depth Fertility Surveys and to J. Vaupel, T. Paul Schultz, R. Freedman, R. Wall, Gabriele Dankert, J. Cleland, Tu Ping and W. Brass for their valuable comments and suggestions. We also would like to thank Ms. Wang Zhenglian for helping us draw the graphics. We appreciate very much Professors Ming-Cheng Chang and Li Qi for providing the detail home-leaving data of Taiwan.

## Abstract

The changes in the pattern of leaving the parental home are directly linked to changes in the patterns of marriage, childbearing, labor force participation and the number, size and structure of the family/household. Thus, it is linked to the social/economic planning of the welfare system as well as the demand/supply of housing and goods for household consumption. This paper tries to investigate this important issue in the Chinese context.

Based on the relevant survey data from the twelve Chinese provinces/municipalities and following a life table analysis approach, this study found that the percentage of the couples living with either the husband's parents or the wife's parents at the time of the marriage has been significantly increasing in almost all of the surveyed mainland provinces. However, the married couples left the parental home earlier and the length of the co-residence is shorter in the 1970s compared with the 1950s and the 1960s; a slight reversal of this trend was observed in the 1980s. The surveys indicate that the life table proportion of couples living with their parents-in-law or parents 5 and 7 years after marriage are generally smaller in the provinces with higher levels of economic development than in the provinces with lower economic development levels, except for Guangdong and Taiwan.

This paper also attempts to establish a model schedule of leaving the parental home after marriage. Such a model is necessary and important both for projecting or simulating family life course and family/household structure, and also for indirect estimation when data is incomplete. Following the Brass Relational Gompertz Approach, we developed a model of home-leaving and found that it fits the Chinese data successfully. Even more importantly, it shows how a very simple analytical approach for projecting " $\alpha$ " and " $\beta$ " of the Relational Gompertz Home-Leaving Model, based on two variables -- the median and the interquartile range as well as the specified home-leaving level, can be derived.

## THE TREND AND THE MODEL SCHEDULE OF LEAVING THE PARENTAL HOME AFTER MARRIAGE IN CHINA

### Introduction

The changes in the pattern of leaving the parental home are directly linked to changes in the patterns of marriage, childbearing, labor force participation and the number, size and structure of the family/household. It is thus linked with the social/economic planning of the welfare system as well as the demand/supply of housing and goods for household consumption. Therefore, the study of the process of leaving the parental home is not only significant academically but also important for socio-economic planning and marketing.

Leaving the parental home is one of the turning points in the life course. Leaving home, especially leaving the parental home after marriage (which is an important social phenomenon in Chinese society) usually means the establishment of a new household. More demographers, sociologists and other social scientists are paying attention to studies of home-leaving. Some research organizations and scholars have explored the issues of home-leaving as an important part of their demographic surveys. For example, the 1971 and 1977 Melbourne family surveys conducted by the Australian National University asked 3 and 6 questions on home-leaving respectively. The 1981-82 survey, conducted by the Australian Institute of Family Studies, asked 26 questions on home-leaving<sup>1</sup>. The Dutch, European and American surveys have also treated home-

---

<sup>1</sup> C. Young, 1987, "Young People Leaving Home in Australia," Dept. of Demography, Australian National University, Canberra.

leaving as an important part of their questionnaires. More and more papers on this topic have been published<sup>2</sup>. For example, Young's 1987 book and Jone-Gierveld and Erik's 1989 paper systematically investigated the process of young adults leaving the parental home and the associated demographic, social, economic and psychological factors. Richard Wall's 1989 paper provides a temporal and spatial perspective on leaving home and living alone in present-day Europe, compared with the situation in the pre-industrial period.

In recent years, Chinese demographers and sociologists have also started to study the process of home-leaving. For example, the KAP Fertility Surveys

---

<sup>2</sup> Richard Wall, 1989, "Leaving Home and Living Alone: An Historical Perspective, Population Studies, Vol. 43, No. 3, pp. 369-389. Richard Wall, 1978, "The Age at Leaving Home," Journal of Family History, Vol. 3, No. 2, pp. 181-202. C. Young, 1987, op. cit. Jenne de Jone-Gierveld & Erik Beekink. 1989, "Young Adults Leaving Home in Reach of Independence and Freedom," NIDI paper and the paper presented at the IUSSP Conference Session F23, New Delhi, 1989. Zeng Yi and A. Coale 1989, "Age Schedules of Leaving the Parental Home, Zeng et. al (eds.), Changing Family Structure and Population Aging in China: A Comparative Approach, Peking University Press, Beijing. Zeng Yi and Li Xiaoli, 1990, "Changes in Family Life Course and Family Structure in Rural Areas of Hunan and Shanxi Provinces," Population and Economics, No. 1, 1990 (in Chinese). P. C. Glick and Lin, S.L, 1986, "More Young People Are Living With Their Parents: Who Are They?" Journal of Marriage and the Family, 48 (February, 1986), pp. 107-112. N. Kiernan, 1986, "Living Arrangements of Young People in Six West-European Countries," European Journal of Population, 2 (1986), pp. 177-184. N. Kiernan, 1989, "The Departure of Children. in E. Grebenik, C. Hohn and R. Mackensen (eds.), Later Phases of the Family Cycle: Demographic Aspects, Clarendon Press, Oxford, pp. 120-145. Mayer, K.U. and K. Schwarz. 1989, "The Process of Leaving the Parental Home on the Precision of the Timing of the Leaving-home Stage," in E. Grebenik, C. Hohn, R. and Mackensen (eds.), Later Phases of the Family Cycle: Demographic Aspects, Clarendon Press, Oxford, pp. 145-164. K. Schwarz, 1984, "When Do Children Leave the Home of Parents?", paper presented at the seminar on the demography of the later phases of the family cycle, Sept. 1984, Berlin. G. Dankert, Qian Zhenchao and Xu Gang, 1990, "China In-Depth Fertility Surveys, Phase 1: Household Structure" (processed). G. Dankert and Hu Yu, 1990, "The Level and Tendency of Co-residence With Parents in Six Provinces/Municipalities of China (mimeographed).

in Taiwan province, conducted by Taiwanese scholars;<sup>3</sup> the rural surveys in Hunan and Shanxi provinces, conducted by the Institute of Population Research at Peking University;<sup>4</sup> and the Jiao County Survey, conducted by the People's University,<sup>5</sup> included questions about home-leaving. It is even more interesting to note that all of the In-Depth Fertility Surveys in the seven provinces and two municipalities conducted by the Chinese State Statistical Bureau<sup>6</sup> have asked questions concerning co-residence status at the time of marriage and leaving the parental home after marriage.

---

<sup>3</sup> R. Freedman, B. Moots, T. Sun, and M. Weinberger, 1978, "Household Composition and Extended Kinship in Taiwan," Population Studies, Vol. 32, No. 1, pp. 65-80. R. Freedman, Ming-Cheng Chang and Te-Hsiung Sun, 1982, "Household Composition, Extended Kinship, and Reproduction in Taiwan: 1973-1980," Population Studies, Vol. 36, No. 3, pp. 395-411. M. Weinstein, Te-Hsiung Sun, Ming-Cheng Chang and Ronald Freedman, 1989, "Household Composition, Extended Kinship, and Reproduction in Taiwan: 1965-1985," mimeographed.

<sup>4</sup> The Hunan and Shanxi surveys were conducted in two counties in Hunan province and one county in Shanxi province in January-February, 1988. The interviewees are married women under age 50, and the total number of the valid and completed interviews of the surveys in these two provinces is 2247. Zeng and Li, 1990, op. cit.

<sup>5</sup> Zhou Qing, 1988, "Rural Family Size and Structure in the Process of Modernization," Population Research, No. 2. Duan Chengrong, 1988, "Family Life Cycle Analysis in the Eastern and Advanced Rural Areas," Rural Economics and Society, No. 4.

<sup>6</sup> The first and the second phase of the In-Depth Fertility Surveys was conducted in April 1985 and 1987 respectively by the State Statistical Bureau of China, with the technical assistance of the Research Center of the International Statistical Institute. The first phase covers three provinces and the municipalities Hebei, Shaanxi and Shanghai with a total population of 93 million. The second phase covers Beijing municipality and Liaoning, Shandong, Guangdong, Guizhou, and Gansu provinces, with a total population of 236 million. The questionnaire for these new fertility surveys is based on the standard of the World Fertility Survey. SSB (State Statistical Bureau), 1986. Country report on the first phase of China's In-Depth Fertility Surveys. SSB (State Statistical Bureau), 1988. Country report on the second phase of China's In-Depth Fertility Surveys.

This paper investigates the demographic trend and tries to establish a model schedule of leaving the parental home after marriage using the relevant data from the above-mentioned Chinese surveys. The second section of the paper analyzes the proportion of couples living with their parents-in-law or parents at the time of first marriage and its change from the 1950s to the 1980s. A life table analysis of the process of leaving the parental home after marriage is presented in the third section.

In the second part (fourth and fifth sections) of this paper, we attempt to establish a model schedule of leaving the parental home after marriage. Such a model is necessary and important both for projecting or simulating family life course and family/household structure, and also for indirect estimation when data is not complete. Following the Brass Relational Gompertz Approach, we developed a model of home-leaving which fits the Chinese data and describes the Chinese pattern of home-leaving successfully. We will also show how a simple analytical formula for projecting " $\alpha$ " and " $\beta$ " of the Relational Gompertz Home-Leaving Model, based on the specified home-leaving level and two variables -- median and the interquartile range, which are more easily understood and predictable than the original parameters " $\alpha$ " and " $\beta$ ", can be derived. The findings are summarized in the last section.

#### Co-residence with parents at the time of first marriage

Table 1 gives the proportion of women who were living with their parents-in-law or parents at the time of their first marriage in different periods and different provinces. Note that the survivability (availability) of parents for co-residence at marriage must also be considered. The figures for Taiwan,



Shanxi and Hunan provinces in Table 1 have taken into account whether the parents were living at the time of the couples' marriage, since such a question was asked in the surveys of those three provinces. No questions on the availability of the parents at marriage were asked in the In-Depth Fertility Surveys, and thus the proportions in Table 1 for the nine provinces/municipalities understate the prevalence of co-residence with parents at marriage since their denominators include those couples whose parents were not living at the time of their marriage. Although the bias is expected to be small since the probability that both parents had died before their children's marriage is very small, we still need to keep this in mind and interpret the figures with caution<sup>7</sup>.

---

<sup>7</sup> We may study the issues of co-residence from another angle: by calculating the percentage of parents who have at least one married child and in fact live with one. We did not do so since the In-Depth Fertility Surveys have no such data and the approach followed in this paper is to study the co-residence issues through analyzing the data of young adults leaving the parental home after marriage.

Table 1. Percentage distribution of the status of co-residence with parents-in-law or parents at the time of first marriage of the surveyed women

	HN & SX	SNX	HB	SH	BJ	SD	GD	GZ	GS	LN	TW
<u>1950-69</u>											
with parents-in-law	72.4	77.9	73.2	49.0	54.3	81.6	68.9	71.0	77.2	69.1	82.0
with own parents	9.2	5.9	3.0	14.5	8.3	2.6	5.2	4.6	4.5	5.0	*
independent	18.4	16.1	23.8	36.6	37.4	15.8	25.8	24.4	18.3	25.9	*
total	100	100	100	100	100	100	100	100	100	100	
number of cases	608	1681	1688	1196	2043	1860	1966	2464	2262	1810	283
<u>1970-79</u>											
with parents-in-law	76.9	81.1	77.7	57.7	60.4	81.8	75.8	74.5	77.2	71.9	70.0
with own parents	8.4	4.4	2.0	11.5	7.1	2.9	5.6	3.4	3.6	3.5	*
independent	14.7	14.4	20.3	30.8	32.5	15.3	18.6	22.1	19.2	24.7	*
total	100	100	100	100	100	100	100	100	100	100	
number of cases	728	1135	1702	1200	2091	2203	2350	2175	1563	2340	1316
<u>1980-87</u>											
with parents-in-law	78.8	80.5	77.9	62.3	62.8	78.7	77.8	79.3	83.6	71.5	67.0
with own parents	6.6	4.4	3.1	10.0	9.8	3.7	6.5	3.5	3.6	4.1	*
independent	14.5	15.1	19.0	27.6	27.4	17.6	15.6	17.2	12.8	24.4	*
total	100	100	100	100	100	100	100	100	100	100	
number of cases	846	1026	1277	1498	348	2061	2338	1849	1929	2417	731

Note : HN-Hunan; SX-Shanxi; SNX-Shaanxi; HB-Hebei; SH-Shanghai; BJ-Beijing; SD-Shandong; GD-Guangdong; GZ-Guizhou; GS-Gansu; LN-Liaoning; TW-Taiwan

The data from the mainland and Taiwan all show that from the 1950s to the 1980s a majority of women were living with their parents-in-law at the time of their marriage. The percentages of women living with their own parents at the time of their first marriage were less than 10 percent in all provinces except Shanghai. In all periods in Hebei and Shandong and in the period 1970-1987 in Guizhou and Gansu, the percentages were as low as less than 4 percent. In Shanghai, 10 - 14.4 percent of the women were living with their own parents at the time of their first marriage. Between the periods of 1950-69 and 1970-79, the percent of couples living with the wife's parents decreased in nine provinces and increased in two provinces. However, we found that from the 1970s to the

1980s, the percentage increased in six provinces, decreased in three provinces and remained unchanged in two provinces. The Taiwanese publications available to us did not give the proportion of couples who lived with the wife's parents at the time of the first marriage, but they did indicate that the stem household with the wife's parents in Taiwan consisted of 2 to 4 percent of all households<sup>8</sup>.

The living arrangement with the wife's parents is a very important issue in China. The Chinese family planning program officially requires urban couples to have only one child. In most rural areas, couples are officially required to have only one child if their first child is a boy, and they are allowed to have a second birth with spacing if the first child is a girl. Six provinces are currently practicing a universal two-child policy in rural areas. No one is officially allowed to have more than two children, with some exceptions.<sup>9</sup> Although not all people follow the official birth policy and the total fertility rates are 2.7 children per women in rural areas and 1.9 children in urban areas, a considerable proportion of Chinese couples will eventually have only one daughter or two daughters. Therefore, it is important for the future of Chinese society to try to change the strong traditional idea of son-preference and to encourage living with one's daughter and son-in-law by increasing the social status and giving socio-economic benefits to such a living arrangement. The data shows that although co-residence with a daughter and son-in-law is not yet a

---

<sup>8</sup> op.cit. footnote 3.

<sup>9</sup> Zeng Yi, 1989, "Is Chinese Family Planning Program Tightening Up?", Population and Development Review, Vol. 15, No. 2, pp. 333 - 337.

widely acceptable living arrangement, it has the potential to become so.<sup>10</sup>

It is very interesting to note that the percent of the couples living with either the husband's parents or the wife's parents at the time of the marriage has been significantly increasing in almost all of the surveyed mainland provinces except Shaanxi and Shandong in which a small decrease was observed. The average percent of the mainland couples living with either the husband's parents or the wife's parents at the time of the first marriage increased from 75.76 percent in 1950-69 to 78.74 percent in 1970-79, and increased again to 80.88 percent in 1980-87. The increase in the 1980s from the 1970s is consistent with the fact that the proportion of three- or more-generation family households observed in the 1987 1% survey of China's population had increased by 1.2 percentage points compared with what was observed in 1982 census. How can we interpret this phenomenon, which deviates from the classical theory that believes the family will converge to a nuclear unit in the process of modernization? Four preliminary explanations may be given. First, the fertility of Chinese urban areas started to decline from 1959 (with the exception of 1963 which had a compensatory high fertility immediately after the famine period of 1960-1962). The urban total fertility rate declined from about 5.4 children per woman in the 1950s to 2.9 in 1967. The young people who were born in the first half of the 1960's had generally reached the stage of family formation when the 1987 1% population survey was taken. Given the fact that most Chinese parents still desire to live with one of their married children at least for sometime, the probability of moving out of the parental home to form a nuclear family for

---

<sup>10</sup> However, in the urban areas in which the rigid one-child policy is implemented, the possibility of co-residence with daughter and son-in-law may be reduced due to the fact that the son-in-law might be the only son and therefore pressured to live with his own parents.

those young urban people has declined, since they have a much smaller number of brothers/sisters than the previous generations. The fact that the proportions of three-generation families in 1987 in the three largest cities -- Beijing, Tianjin and Shanghai, in which fertility declined even earlier and quicker -- have all significantly increased compared with 1982, may support this speculation. This speculation of the impact of fertility reduction on family structure has also been verified through simulations before we had the above-mentioned data<sup>11</sup>. Second, the increase in the survival probability (or availability)<sup>12</sup> of the parents is another reason. The third interpretation applies only to the increase in co-residence in the 1980s. Specifically, the function of the rural family household has changed from a consumer unit under the previous collective mode of organization into both a consumer and a production unit under the current household responsibility system. This radical change may enhance the economic value of co-residence between newly married couples and their parents-in-law (or parents) as well as the three-generation family, since collaboration among members of different generations may increase the efficiency of household production activities. Fourth, the scarcity of housing in urban areas and even in some rural areas may have played a role in the patterns of family formation: some young couples may have to stay with their

---

<sup>11</sup> Zeng Yi, 1986, "Changes in Family Structure in China: A Simulation Study," Population and Development Review, Vol. 12, No. 4, pp. 675-703. Zeng Yi, 1988, "Changing Demographic Characteristics and the Family Status of Chinese Women," Population Studies, Vol. 42, No. 2, pp. 183-203. Zeng Yi, 1990, Family Dynamics In China: A Life Table Analysis, The University of Wisconsin Press.

<sup>12</sup> As mentioned before, the figures for Hunan, Shanxi and Taiwan are only for those married women who were interviewed and whose parents-in-law or parents were living at the time of their marriage. Even so, we still see the increase of the percent of the couples living with either husband's parents or wife's parents at the time of the first marriage in Hunan and Shanxi.

parents simply due to a lack of other available housing. Although housing construction has been enhanced significantly in the 1980s, compared with the 1970s, the supply is still far from sufficient to meet the demand, especially in urban areas. The accumulated urban housing shortage resulted from the fact that housing construction almost stopped during the period of the so-called Cultural Revolution (1966-1976), and the young people born in the second baby boom of the 1960s are now reaching family formation stage.

Table 2, derived from the Hunan and Shanxi surveys, presents the frequency distribution of the reasons given by rural women whose parents-in-law were living for their decision not to live with them. Unfortunately, we have no similar data for the other provinces since no questions on the reasons behind the choices of co-residence were asked in the other surveys. The data from Hunan and Shanxi provinces show that "the house is not large enough" and "should be independent" are the most common reasons for not living with parents-in-law and these reasons have become even more common in recent years: an increase from 26 percent for women who married in the period 1950-69 to over 30 percent for women who married in the period 1980-87. Tension, especially the tension between daughter-in-law and mother-in-law, is another frequently given reason for not living with parents-in-law. "Existing tension" and "worry tension may occur" together account for about 24 percent of the reported cases. We suspect that the reason of "tension" may be more prevalent than reported since some respondents' answers may be influenced by the traditional Chinese social norm requiring that a daughter-in-law respect her mother-in-law.

Table 2. Percentage distribution of reasons given by women whose parents-in-law survive for the choice to not live with them in the rural areas of Hunan and Shanxi provinces

Reasons	Marriage Cohort		
	1950-1969	1970-1979	
existing tension	6.9	6.1	6.1
worry tension may occur	16.3	17.8	16.6
parents-in-law want quiet	4.4	8.9	4.8
house is not large enough	26.4	31.0	32.4
should be independent	26.4	26.7	30.4
other	19.6	9.5	9.7
total	100.0	100.0	100.0
number of cases	363	506	608

Note: Some women do not live with their parents-in-law but their parents-in-law may live with their husbands' brother. This option was not listed in the survey questionnaire because it was believed that the reasons why parents-in-law live with the surveyed women's sibling rather than the women may not be 'tension' or 'house is not large enough' or 'should be independent' or any other particular reason but simply that their sibling has taken the responsibility. They are thus classified as 'other'.

#### A life table analysis of leaving the parental home after marriage

As the data sources of this paper indicate, the surveys of the twelve provinces and municipalities in China all asked the question, "Are you currently living with your parents-in-law or parents?" If the answer was "No" and the respondents did live with parents-in-law or parents at the time of the first marriage, another question followed: "How many years did you live with your parents-in-law or parents?" For those women who are still living with parents-in-law or parents, we do not know how many years they will co-reside with their parents-in-law or parents because they may leave the parental home any time in the future or they may remain in co-residence until both parents-in-law or both parents die. This is the so-called "right-censoring" problem. We address the

"right censoring" problem using the following formula.<sup>13</sup>

$$q(i) = D(i) / (w(i) - 0.5C(i)) \quad (1)$$

where  $q(i)$  -- probability of leaving the parental home in the interval between marriage durations  $i$  to  $i+1$ .

$D(i)$  -- number of women who left the parental home between marriage duration  $i$  and  $i+1$ .

$W(i)$  -- number of women who live with parents-in-law or parents at the exact marriage duration  $i$ .

$C(i)$  -- number of women whose marriage duration are equal or greater than  $i$  but less than  $i+1$  and are still living with parents-in-law or parents at the time of the survey.

The formula (1) implicitly assumes that the censored women (i.e. those who are still living in the parental home) drop out of the risk population at the middle of the year. The formula (1) does not take into account the death of both parents after the couples' marriage. Again, the impact is expected to be small since the probability that both parents of the couples, who were co-residing with them at their marriage, will die shortly after the marriage is small.

Looking at the  $q(i)$  curves of all of the different marriage cohorts in the different provinces, we found a "heap" at the marriage durations 5, 10 and 15, especially marriage duration 10. This is obviously the consequence of some of the respondents' digit preference. For example, some women may actually have lived with their parents-in-law for 9 or 11 years but rounded the figure to 10

---

<sup>13</sup> R. C. Elandt-Johnson and Norman L. Johnson, 1980. Survival Models and Data Analysis. New York: John Wiley and Sons. p. 157.



years. We therefore smoothed the  $q(i)$  curves whenever the "heap" is recognized<sup>14</sup>. Once we estimated  $q(i)$ s, the construction of the life table of home-leaving is straightforward.

Note that the life table analysis of leaving the parental home and remaining in co-residence is started from the time before marriage. We denote the time before marriage, which may be several years before marriage, as "duration -1". The percent at exact marriage duration 0 is actually the percent of those who did live with parents-in-law or parents at the time of their first marriage. The value of the life table survival function (proportion living at parental home) at "duration -1" is one, and the difference of the values of the life table survival function between "duration -1" and "duration 0" is the proportion of those who leave the parental home before or at the time of the marriage. We are not able to model the process of leaving the parental home before marriage in detail because no questions on timing of home-leaving before marriage were asked in the 12 surveys which are the data base for this study.

Figure 1 and Table 3 presents the curves of the percent of women who did live in the parental home at the time of the first marriage and at different marriage durations, based on the life tables. Figure 1 and Table 3 show that married couples leave the parental home earlier, and the length of the co-residence is shorter in the 1970s and the 1980s compared with the 1950s and the 1960s. For example, among the twelve provinces surveyed, women who married in 1950-69 (45.5 percent and 38.6 percent) were still living at the parental home

---

<sup>14</sup> We smoothed the "heap" by using the formula  $q(i) = (q(i-1) + 2q(i) + q(i+1))/4$ . Given the digit preference demonstrated by the "heap" of the observed  $q(i)$  curves and the fact that Chinese people know the date on either the Western or Chinese calendar well, we think that the data quality on the home-leaving would be better if a question on the date of leaving the parental home (instead of how many years in co-residence) was asked.

on average 5 and 7 years after the marriage respectively. These figures were significantly reduced to 36.6 percent and 29.1 percent for women who married in the 1970s. It is obvious that, although more Chinese couples live at the parental home at the time of their first marriage, the length of the co-residence was significantly reduced in the 1970s, compared with the 1950s and the 1960s. This trend may be due to more and more young people wishing to be independent and the decrease in the proportion of the joint family (married brother living together with their parents). However, comparing the curves and figures of the 1970s and the 1980s, we found that in the five provinces of Beijing, Shandong, Guangdong, Gansu and Liaoning, the percent of co-residence at marriage duration 5 in the 1980s was higher than in the 1970s, and the change in the 1980s in the rest of the surveyed provinces were also very small. This is consistent with the fact that the proportion of three or more generation family households and the percent of co-residence with parents-in-law and parents at the time of the first marriage have been increasing in the 1980s, as discussed and interpreted in the previous section.

The mainland surveys indicate that the life table proportions of couples living with parents-in-law or parents at the marriage duration 5 and 7 years are generally smaller in the provinces with higher levels of economic development than in the provinces with a lower economic development level, except Guangdong province. Guangdong province has a more highly developed economy than many other provinces, but the co-residence between married couples and their parents as well as the proportion of three generation families are significantly higher than many other poorer provinces. This may be partially explained by the fact that the tendency to maintain Chinese tradition is stronger in Guangdong than elsewhere. This may be due to the stronger impact of overseas Chinese people, including

those from Hong Kong, most of whom are originally from Guangdong. Another possible explanation may be that the larger number of family enterprises in Guangdong, which is one of the outcomes of the Hong Kong influence, may play a role in maintaining the Chinese tradition.

Table 3. Percent distribution of co-residence with parents-in-law or parents of the marriage cohort members (including women who ever-lived and never-lived with parents-in-law or parents at the time of first marriage), based on the life tables

Province	Marriage cohort and marriage duration																
	1950-1969						1970-1979						1980-1987				
	-1	0	1	3	5	7	-1	0	1	3	5	7	-1	0	1	3	5
-----																	
Hunan & Shanxi	100	81	71	55	47	43	100	86	66	43	34	30	100	83	57	28	17
Shaanxi	100	84	80	68	57	49	100	86	79	60	47	38	100	83	74	50	39
Hebei	100	76	72	57	46	39	100	80	72	49	32	24	100	79	65	39	23
Shanghai	100	63	57	43	35	31	100	69	57	41	32	26	100	69	59	40	30
Beijing	100	63	58	45	36	30	100	67	59	42	31	24	100	72	62	44	35
Shandong	100	85	79	57	43	34	100	85	72	44	28	19	100	83	65	40	29
Guizhou	100	76	72	56	43	35	100	78	69	45	33	27	100	83	67	44	33
Guangdong	100	74	71	60	50	43	100	82	77	61	47	37	100	85	79	62	51
Gansu	100	81	79	68	56	46	100	81	78	64	50	38	100	87	83	67	53
Liaoning	100	74	67	46	33	27	100	76	62	34	23	17	100	76	59	37	29
Taiwan	100	82	71	61	55	48	100	70	60	53	46	40	100	67	54	43	*

\* -- data not available

Data sources:

(1). Hunan & Shanxi provinces, household surveys conducted by the Institute of Population Research at Peking University, 1988. We combine the data from the surveys of the two provinces because of the sample size limitation. Ref. footnote 4.

(2). Taiwan province, the KAP surveys conducted by the Taiwan scholars. Ref. footnote 3.

(3). The data of the other seven provinces and two municipalities are derived from the data tapes of In-Depth Fertility Surveys conducted by the State Statistical Bureau. Ref. footnote 6.

Although the proportion of couples who were living in the parental home at the time of their first marriage in Taiwan is smaller than in the mainland surveyed provinces, the life table proportion of couples living in the parental home 5, and 7 years after marriage are higher in Taiwan than in nearly all of the surveyed mainland provinces and municipalities in the 1950s, the 1960s and the 1970s. The 1980 proportion of couples living in the parental home 3 years after marriage in Taiwan is higher than the 5 surveyed mainland provinces<sup>15</sup>. However, the economic development level in Taiwan province is significantly higher than the mainland provinces. How is one to interpret this phenomenon? One explanation or hypothesis is that family structure and family life course are affected not only by economic level, but also by the social, political system, and the ethical values. For example, in Taiwan, schools and other social/political institutions have always strongly stressed filiality and traditional values. While the mainland had also stressed filiality to the parents, many other traditional values, such as the unconditional deference of women to their husbands and parents-in-law and the ruling function of the family-tree or kinship system, were often attacked in the mainland. This may encourage a weakening of traditional values in the Chinese mainland, compared to Taiwan. Given some greater emphasis on traditional values, these values could also be realized more fully in Taiwan because the people there can afford to maintain larger households, and there is less need for young people to move away. In the Chinese mainland, many families do not have access to large enough houses to maintain a large household, and in many cases the separation of the married children and parents is a good excuse for demanding additional heavily subsidized

---

<sup>15</sup> The available 1980s figures for Taiwan are only up to marriage duration 3.

housing in urban areas or a site for house construction in rural areas. The job allocation system (often not entirely the employees' own choice) which emphasizes that people from the east coast should go to work in the north-west inland areas, is also one of the factors which leads to the separation of many parents and their married children. Moreover, the children may not be able to stay in the parental home if they get a job in another part of the city because of the poor transportation system in the mainland. Taiwan, on the other hand, is small and has very good transportation facilities, making it more feasible for young people to stay with their parents and commute to their jobs.

#### Model schedule of leaving parental home after marriage

Demographic models are an attempt to represent demographic processes in the form of a mathematical function or a common pattern based on observed data, and presented by a model table or a standard and a few measurable demographic variables. Demographic models can be used for estimation when suitable data is unavailable or incomplete, and for projecting the future demographic rates when a projection/simulation model depends on those rates. Demographic models can also be used to improve the quality of existing rates when the observed ones are irregular due to the problems of data quality such as mis-reporting.

In the case of the process of leaving home after marriage, we currently have data for twelve provinces and municipalities. Because the focuses of Chinese demographic surveys are still fertility, contraception and mobility, etc., we do not expect the home-leaving data gap for the other provinces to be filled quickly, at least for the recent years. On the other hand, it is needed to estimate the rates of leaving home for future years and for projecting the future trend of the family/household structure. Therefore, it is very useful to attempt to establish a model schedule of leaving the parental home after marriage for

both academic and practical purposes.

After considering and trying some relevant demographic and statistical modeling approaches, we found that the Brass Relational Gompertz Model<sup>16</sup> fits the observed home-leaving data reasonably well. Define  $H(i)$  as the cumulated frequency<sup>17</sup> of leaving the parental home up to marriage duration  $i$  for those who lived in the parental home at the time of the first marriage. Define  $T$  as the cumulated frequency up to the highest marriage duration at which time leaving the parental home may occur for those who lived in the parental home at the time of the first marriage. Note that  $(T+C) \leq 1$ , where  $C$  is the proportion of the marriage cohort members who do not live in the parental home at the time of their first marriage. Assuming  $H(i)/T$  follows the Gompertz distribution, namely,

$$H(i)/T = \exp(A \cdot \exp(B \cdot i)) \quad (2)$$

where,  $A$  and  $B$  are constant

Taking the double-minus-log transformation,

$$-\ln(-\ln(H(i)/T)) = -\ln(-A) - B \cdot i$$

---

<sup>16</sup> W. Brass, 1968, "Note on Brass Method of Fertility Estimation," Appendix A to Chapter 3, in W. Brass et al. The Demography of Tropical Africa, Princeton University Press, Princeton. W. Brass, 1975, Methods of Estimating Fertility and Mortality From Limited and Defective Data, Chapel Hill, North Carolina: International Program for Population Statistics. W. Brass, 1978, "The Relational Gompertz Model of Fertility by Age of Women," London School of Hygiene and Tropical Medicine, 1978 (mimeographed). H. Booth, 1984, "Transforming Gompertz's Function for Fertility Analysis: The Development of a Standard for the Relational Gompertz Function," Population Studies, Vol. 38, No. 3, pp. 495 -506.

<sup>17</sup> The term "frequency" used in this paper is actually the "net frequency" because the estimated frequency of leaving the parental home is actually the frequency which is derived by subtracting the frequency of returning to the parental home from the sum of the frequency of leaving the parental home and the rate of death of both parents. Since the chance of independent married couples returning to the parental home is usually small in China, and the probability of dying of both parents who co-resided with the couple when the couple is relatively young is also small, the net frequency is very close to the frequency of leaving the parental home.

$$Y(H(i)/T) = -\ln(-A) - B*i \quad (3)$$

where Y stands for the double-minus-log transformation of  $H(i)/T$ .

If the assumption of the Gompertz distribution expressed in equation (2) is true, the relationship between  $Y(H(i)/T)$  and  $i$  should be a straight line. We

plotted the Y transformation of  $H(i)/T$  using the data from all surveyed provinces

and found that the linear relationship expressed in equation (2) is reasonably

good except at very high marriage durations, the conclusion also found by the

works of Brass, et al. for fitting the age-specific fertility schedule.

Therefore, the Brass relational approach with a "standard" is needed in order

to improve the fit and to have a better description of the home-leaving process.

Following Brass's relational approach, we established a standard " $Y_s$ " (the

subscript "s" stands for the "standard") function by averaging the series of "Y"

values of the 1950-69 and 1970-79 marriage cohorts of all eleven mainland

surveyed provinces and the "Y" values from the Taiwan 1973 survey<sup>18</sup>, as shown in

Table 4. As one may expect, the linear relationship between the standard  $Y_s$  and

$i$  is also good:

$$Y_s(H_s(i)/T_s) = -\ln(-A_s) - B_s*i \quad (4)$$

Multiplying equation (4) by  $(B/B_s)$  and subtracting the result from equation

(3),

$$Y(H(i)/T) = -\ln(-A) + (B/B_s)*\ln(-A_s) + (B/B_s)*Y_s(H_s(i)/T_s) \quad \text{or}$$

---

<sup>18</sup> Based on the Taiwan 1973 survey, the net cumulative frequencies of termination of co-residence up to the marriage duration 10 were published (Freedman et al. 1978, p. 77). According to the surveys' other data, we found that some married couples may leave their parental home after more than ten years of the first marriage, when the husbands' (or wives') younger brother grows up and the decision of co-residence between their younger brother's nuclear unit and the parents has been made. We therefore, ended our life tables and the model schedule at the marriage duration 15. We extrapolated 1973 Taiwan frequencies of home-leaving from marriage duration 11 to 15.

$$Y(H(i)/T) = \alpha + \beta * Y_s(H_s(i)/T_s) \quad (5)$$

where  $\alpha = -\ln(-A) + (B/B_s) * \ln(A_s)$ ;

$$\beta = B/B_s$$

Table 4. The values of "Y" transformation of the standard

Marriage duration	Y value	Marriage duration	Y value
1	-0.775958	9	1.59989
2	-0.233141	10	1.84701
3	0.138111	11	2.13382
4	0.466018	12	2.48215
5	0.718678	13	2.88704
6	0.957671	14	3.37048
7	1.172270	15	4.15817
8	1.379780		

Equation (5) establishes that the "Y" transformation of the observed schedule of leaving the parental home after marriage is a linear function of the "Y" transformation of the standard, which is listed in Table 4. Using the Ordinary Least Square Method, we fitted the observed single-duration specific frequencies of leaving home after marriage based on equation (5) for the 1950-69 and the 1970-79 marriage cohorts of eleven provinces/municipalities and for the Taiwan 1973 survey data. All of the frequencies fit fairly well, with three exceptions, where the fits deteriorate at duration 0-1 (see Figure 2). The  $R^2$  values, which are the proportion of the original variance (total variance) which can be explained by using the regression line as a prediction device and which measures the strength of the linear relationship between the observed Y values and the standard Y values, are listed as "fit A" in Table 5. The results of the fittings show that our attempt at modeling the observed frequencies of leaving the parental home after marriage following the Brass Relational Gompertz Approach is successful.



The fact that the good fittings of the twelve provinces are based on the standard derived from the data of these twelve provinces may lead one to question whether the standard is applicable to the Chinese provinces for which no home-leaving data is available. In order to test whether the good fitting of one area should necessarily be based on the standard which includes the data from that area, we fitted the observed single-duration specific frequencies of leaving home for each province based on equation (5) and a new standard which excludes the data from this province. For each marriage cohort in each province, the curves and the  $R^2$  of two fittings based on two different standards (one includes and the other one excludes the data from the province itself) are shown in Figure 2 and Table 5 for comparison purpose. We were pleased to have found that the two sets of fittings of each province based on the two different standards (one includes and another one does not include the data from the province itself) were almost identical. This verifies that the standard based on twelve (or eleven) provinces is good enough to represent different Chinese regional patterns of home-leaving, and that this standard is applicable to other Chinese provinces which have no home-leaving data available. The standard can represent different Chinese regional patterns of home-leaving because it is based on the data from all different parts of the country (north, south, east and west) and from areas with different levels of economic development.

Table 5.  $R^2$  of the fittings based on equation (5)

Province	1950-69 marriage cohort		1970-79 marriage cohort	
	Fit (A)	Fit (B)	Fit (A)	Fit (B)
Hebei	0.981068	0.982097	0.929218	0.924031
Shanghai	0.954782	0.953788	0.966813	0.966761
Shaanxi	0.950568	0.949726	0.948411	0.945067
Beijing	0.888852	0.877912	0.943750	0.936259
Liaoning	0.977216	0.971531	0.959415	0.951563
Shangdong	0.964619	0.958139	0.941076	0.931917
Guangdong	0.931097	0.924198	0.948547	0.942334
Guansu	0.915934	0.900360	0.935591	0.924283
Guizhou	0.966792	0.963573	0.984930	0.983434
Hunan & Shanxi	0.982639	0.979461	0.978858	0.976119
Taiwan	*	*	0.975302	0.973104

Note: Fit (A) -- the fittings based on the standard which were based on the standard derived from data of all twelve province including the province itself.

Fit (B) -- the fittings for testing purposes which were based on a standard derived from data of eleven provinces excluding the province itself.

\* -- Data are not available.

#### Projecting the parameters " $\alpha$ " and " $\beta$ " based on the Median and interquartile range

Note that the regression coefficients " $\alpha$ " and " $\beta$ " of equation (5) in our successful fittings are estimated by the Ordinary Least Square Method based on the observed frequencies and the "standard." The range of our estimates of " $\alpha$ " is from -0.539 to 0.585, and the range of the estimated " $\beta$ " is from 0.879 to 1.122. According to the studies by Brass et al., the demographic and statistical meanings of " $\alpha$ " and " $\beta$ " are clear. The " $\alpha$ " can be taken as determining the age location (i.e. early or late) of the schedule, and the " $\beta$ " may be interpreted as determining the spread or degree of concentration of the schedule<sup>19</sup>. More specifically, the smaller the " $\alpha$ ", the later the home-leaving, and when " $\alpha$ " is equal to 0, the age location of the home-leaving schedule is identical to the "standard". The smaller the " $\beta$ ", the greater the spread of the curve of the

<sup>19</sup> United Nations, 1983, Manual X, United Nations, New York, pp. 25-26.

home-leaving schedule; and when " $\beta$ " is equal to one, the spread or the degree of concentration of the schedule is identical to the standard.

However, another important question remains: how could one estimate or project " $\alpha$ " and " $\beta$ " in the case when the detailed single-duration specific frequencies of leaving the parental home are not available<sup>20</sup>? It is obviously very difficult to directly estimate or project " $\alpha$ " and " $\beta$ " since their values are not measurable from demographic data sources. It is therefore very important to find a reliable way to estimate " $\alpha$ " and " $\beta$ " based on other demographic variable(s) that can be more easily understood, measured or predicted than the original parameters " $\alpha$ " and " $\beta$ " (Denton and Spencer, 1984)<sup>21</sup>. This is very helpful in simulation and projection/forecasting works because it is easier to frame assumptions about them.

Define M as the median, i.e. the exact marriage duration at which 50 percent of those married women who ever co-reside with parents-in-law or parents and eventually will leave the parental home, have left. Define N and O as the exact marriage duration at which 25 percent and 75 percent of those married women who ever co-reside with parents-in-law or parents and eventually will leave the parental home have left, respectively.

---

<sup>20</sup> Actually, when the detailed and reliable single-duration specific rates of leaving the parental home are available, we do not need to estimate " $\alpha$ " and " $\beta$ " at all. The purpose of estimating the " $\alpha$ " and " $\beta$ " using the observed single-duration specific rates of leaving the parental home in this paper is for testing our model of leaving home after marriage.

<sup>21</sup> F. T. Denton and Byron G. Spencer. 1974, "Some Demographic Consequences of Changing Fertility Patterns: An Investigation Using the Gompertz Function," Population Studies, Vol. 28, No. 2, pp. 309-318. Denton and Spencer in their paper (p. 310) derived an analytical way to project " $\alpha$ " and " $\beta$ " of the Gompertz Fertility Model based on the median and interquartile range and the specified fertility level, using the Newton-Raphson non-linear iterative procedure. We, however, will show how a simpler analytical formula for projecting " $\alpha$ " and " $\beta$ " of the Relational Compertz Home-Leaving Model can be derived.

Following equations (3)

$$Y(H(O)/T) = -\ln(-A) - B*O \quad (6)$$

$$Y(H(N)/T) = -\ln(-A) - B*N \quad (7)$$

Following equation (4)

$$Y_s(H_s(O_s)/T_s) = -\ln(-A_s) - B_s*O_s \quad (8)$$

$$Y_s(H_s(N_s)/T_s) = -\ln(-A_s) - B_s*N_s \quad (9)$$

Subtracting equation (6) from equation (7),

$$Y(H(N)/T) - Y(H(O)/T) = B(O - N)$$

Subtracting equation (8) from equation (9),

$$Y_s(H_s(N_s)/T_s) - Y_s(H_s(O_s)/T_s) = B_s(O_s - N_s)$$

Since  $Y(H(O)/T)$  is equal to  $Y_s(H_s(O_s)/T_s)$  and  $Y(H(N)/T)$  is equal to  $Y_s(H_s(N_s)/T_s)$ , thus,

$$B(O - N) = B_s(O_s - N_s) \quad \text{and}$$

$$B/B_s = (O_s - N_s) / (O - N)$$

Since  $\beta = B/B_s$  and then

$$\beta = (O_s - N_s) / (O - N)$$

Note that  $(O_s - N_s)$  is  $7.37198 - 3.70599 = 3.66599$ , which is the interquartile range of the established standard schedule of leaving home and  $(O - N)$  is the interquartile range of the schedule to be estimated/projected. We may denote the interquartile range  $(O - N)$  as  $I$ , and we may only need to predict the  $I$  values rather than both the  $O$  and  $N$  values. We listed the values of the first quartile, third quartile, interquartile range, Median, Mean and standard deviation of the marriage-duration-specific frequencies of leaving home of all available marriage cohorts, derived from the observed data of the twelve Chinese provinces, in the Appendix in order to help readers to understand the range of the values of these statistics. Finally, the analytical formula for estimating

$\beta$  can be expressed as follows:

$$\beta = 3.66599 / I \quad (10)$$

After the  $\beta$  is derived, the estimation of  $\alpha$  will be straightforward by following equation (5) and letting the "i" in equation (5) equal the median M,

$$Y(H(M)/T) = \alpha + \beta * Y_s(H_s(M)/T_s)$$

$Y(H(M)/T)$  is equal to  $\ln(-\ln(0.5))$  and  $Y_s(H_s(M)/T_s)$  can be easily obtained from Table 4 by linear interpretation, therefore  $\alpha$  can be calculated the right way.

The other parameter in equation (5) to be estimated is T. T can be estimated by subtracting C (proportion leaving the parental home before the first marriage) from TT (the proportion eventually leaving the parental home for all of the marriage cohort members, denoted as TT,  $TT \geq C$  and  $TT \leq 1$ ). In sum, as far as we can estimate or guess or project the median M and interquartile range I and the level of home-leaving, we can then derive the single-duration-specific frequency of leaving the parental home after marriage by using equations (10) and (5).

Note that once the single-duration-specific frequencies of leaving the parental home after marriage are estimated, we can easily compute the single-duration-specific net probability of leaving the parental home, which is very important for the purpose of projecting and simulation. In the life table of home-leaving for those who have ever lived with their parents-in-law or parents, we may define:

$l(i)$  -- the survival function, i.e. the percent of the women who live in the parental home at the exact marriage duration i.

$d(i)$  -- the frequency of leaving the parental home in the interval between marriage durations i and i+1.

$q(i)$  -- probability of leaving the parental home in the interval between marriage durations  $i$  and  $i+1$ .

Since  $l(0) = l(-1) - C = 1 - C$  and  $d(0) = l(0) * q(0)$ ,

we have  $q(0) = d(0)/l(0) = d(0)/(1 - C)$

Since  $d(i) = l(i) * q(i)$  and  $l(i) = l(0) - \sum_{x=0}^{i-1} d(x)$  ( $i \geq 1$ )

We have  $q(i) = d(i) / (l(0) - \sum_{x=0}^{i-1} d(x))$  (8)

We could prove mathematically<sup>22</sup> that  $0 \leq q(i) \leq 1$  as long as

$\sum_{x=0}^w d(x) \leq l(0)$ , which is true in any case of the life table

analysis (where  $w$  is the highest marriage duration at which leaving the parental home may occur).

<sup>22</sup> The mathematical proof of  $0 \leq q(i) \leq 1$  is as follows:

$$q(i) = d(i) / (l(0) - \sum_{x=0}^{i-1} d(x)) = (\sum_{x=0}^i d(x) - \sum_{x=0}^{i-1} d(x)) / (l(0) - \sum_{x=0}^{i-1} d(x))$$

$$= ((l(0) - \sum_{x=0}^{i-1} d(x)) - (l(0) - \sum_{x=0}^i d(x))) / (l(0) - \sum_{x=0}^{i-1} d(x))$$

$$= 1 - (l(0) - \sum_{x=0}^i d(x)) / (l(0) - \sum_{x=0}^{i-1} d(x))$$

Since  $0 \leq ((l(0) - \sum_{x=0}^i d(x)) / (l(0) - \sum_{x=0}^{i-1} d(x))) \leq 1$ , so that  $0 \leq q(i) \leq 1$ .

### Summary

Based on the relevant survey data from the twelve provinces/municipalities, this paper investigates the trend of the living arrangement at the time of the first marriage and the process of leaving the parental home after marriage, following a life table analysis approach. Not surprisingly, the surveys show that at the time of the first marriage, a majority of the Chinese couples live in the husband's parental home and a small proportion live with the wife's parents. It is very interesting to note that the percent of the couples living with either husband's parents or wife's parents at the time of the marriage has been significantly increasing in almost all of the surveyed mainland provinces except Shaanxi and Shandong, in which a small decrease was observed. The average percent of the mainland couples living with either the husband's parents or wife's parents at the time of the first marriage increased from 75.76 percent in 1950-69 to 78.74 percent in 1970-79 and increased again to 80.88 percent in 1980-87. This study shows that the married couples were leaving the parental home earlier and that the length of the co-residence was shorter in the 1970s and the 1980s compared with the 1950s and the 1960s. For example, among the twelve provinces surveyed, women who married in 1950-69 (45.5 percent and 38.6 percent) on average were still living at the parental home 5 and 7 years after the marriage respectively. These figures were significantly reduced to 36.6 percent and 29.1 percent for women who married in the 1970s. However, comparing the curves and figures of the 1970s and the 1980s, we found that in the five provinces of Beijing, Shandong, Guangdong, Gansu and Liaoning, the percent of co-residence 5 years after the marriage in the 1980s is even higher than that in the 1970s; the change in the 1980s in the rest of the surveyed provinces is also very small.

This is consistent with the fact that the proportion of three or more generation family households and the percent of co-residence with parents-in-law and parents at the time of the first marriage have been increasing in the 1980s.

The mainland surveys indicate that the life table proportions of couples living with parents-in-law or parents at the marriage duration 5 and 7 years are generally smaller in the provinces with higher levels of economic development than in the provinces with lower economic development levels, except Guangdong province. Guangdong province has a much higher income level than many other provinces, but the co-residence between married couples and their parents as well as the proportion of three-generation families are significantly higher than many other poorer provinces.

Although the proportion of couples who were living in the parental home at the time of the first marriage in Taiwan is smaller than in the mainland surveyed provinces, the life table proportions of couples living in the parental home 5 and 7 years after marriage are higher there than in most of the surveyed mainland provinces and municipalities in the 1950s, the 1960s and the 1970s, while the economic development level in Taiwan province is significantly higher than the mainland provinces. We have also given some explanations in this paper for the findings of Chinese trends and patterns in the living arrangement at the time of the first marriage and in leaving the parental home after marriage.

We have developed a model schedule of leaving the parental home after marriage, following the Brass Relational Gompertz Approach. The model fits the observed Chinese data successfully. We have also verified that the model schedule is applicable to other Chinese areas in which no available data is to be included in the standard schedule. Furthermore, we derived a simple analytical approach to project the parameters " $\alpha$ " and " $\beta$ " which determine the shape of the home-



leaving schedule based on two demographic variables -- the median and the interquartile range -- as well as the specified level of home-leaving. The median and the interquartile range are demographically more easily measured and predictable than the original two parameters " $\alpha$ " and " $\beta$ ". With the projected median and the interquartile range and the proportion eventually leaving home and the proportion leaving home before marriage, we can derive the single-duration-specific frequencies of leaving the parental home after marriage. The simple analytical approach for projecting " $\alpha$ " and " $\beta$ " derived in this paper makes the Relational Gompertz Model of home-leaving even more powerful for projection/simulation purposes because the number of the parameters to be guessed is small and they are all demographically measurable and predictable.

The model schedule of leaving the parental home after marriage is both necessary and important for projecting or simulating family life course and family/household size and structure in the context of Chinese and other Asian societies as well as some other developing countries. The model schedule can also be used for the purpose of indirect estimation or smoothing when the data on home-leaving is not available or not reliable.

The model schedule established in this paper is based on Chinese data only. Theoretically speaking, however, the same methodology may be applied to the data from other countries of leaving home after marriage. The analytical approach to projecting the parameters " $\alpha$ " and " $\beta$ " may be especially applicable to other Relational Gompertz Models, such as the Brass Relational Gompertz Fertility Model.

Appendix

## Statistical index of leaving parental home after marriage

Province	Mar. cohort	1st QT	3rd QT	I	M	Mean	SD
Hebei	1950-69	2.329	8.632	6.303	4.650	5.698	0.0207
	1970-79	1.814	6.359	4.545	3.481	4.629	0.0383
Shanghai	1950-69	1.614	7.376	5.762	3.305	4.855	0.0225
	1970-79	1.225	6.941	5.716	3.097	4.521	0.0327
Shaanxi	1950-69	2.712	9.487	6.775	5.298	6.265	0.0163
	1970-79	1.919	7.734	5.815	3.874	5.250	0.0296
Beijing	1950-69	2.006	8.957	6.951	4.489	5.641	0.0191
	1970-79	1.635	6.451	4.816	3.392	4.485	0.0296
Liaoning	1950-69	1.666	6.949	5.283	3.346	4.686	0.0338
	1970-79	1.185	4.749	3.564	2.225	3.519	0.0531
Shandong	1950-69	2.002	7.619	5.617	3.774	5.178	0.0337
	1970-79	1.469	5.178	3.709	2.833	3.866	0.0511
Guangdon	1950-69	2.801	9.359	6.558	5.510	6.317	0.0142
	1970-79	2.402	7.868	5.466	4.526	5.528	0.0242
Gansu	1950-69	3.296	10.146	6.850	6.121	6.809	0.0152
	1970-79	2.926	8.912	5.987	5.292	6.101	0.0241
Guizhou	1950-69	2.233	8.296	6.064	4.396	5.491	0.0241
	1970-79	1.448	5.506	4.057	2.826	4.057	0.0407
Hunan & Shanxi	1950-69	1.267	7.021	5.754	2.886	4.522	0.0301
	1970-79	0.830	4.670	3.840	2.115	3.520	0.0550
Taiwan	1950-69	1.555	7.017	5.461	3.555	4.762	0.0234

## Note:

- 1st QT -- First quartile, i.e. the exact marriage duration at which 25 percent of those married women who ever co-reside with parents-in-law or parents and eventually will leave the parental home have left.
- 3rd QT -- Third quartile, i.e. the exact marriage duration at which 75 percent of those married women who ever co-reside with parents-in-law or parents and eventually will leave the parental home have left.
- I -- Interquartile range, i.e. the difference between first and third quartile.
- M -- Median, i.e. the exact marriage duration at which 50 percent of those married women who ever co-reside with parents-in-law or parents and eventually will leave the parental home have left.
- Mean -- mean marriage duration of leaving home of those married women who ever co-reside with parents-in-law or parents and eventually will leave the parental home.
- SD -- standard deviation of the duration specific frequency of leaving home.