Educational Differentials in Rates and Probabilities of First Marriage among Taiwanese Women Born in 1879-1991

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ABSTRACT

I apply Kaplan-Meier estimator and the Cox proportional hazard models to document cohort trends of eventual probabilities and rates of first marriage in Taiwan using data pooled from 15 waves of the Women's Marriage, Fertility, and Employment Surveys conducted between 1979 and 2006. The results suggest that marriage rates and the proportions of women ever having been married have declined over successive birth cohorts of Taiwanese women born between 1879 and 1991. In all birth cohorts, highly educated women have had lower marriage rates and lower probabilities of ever having been married than their lower educated counterparts. The educational differentials in marriage rates and the probabilities of ever having been married have increased across successive birth cohorts.

INTRODUCTION

In the past thirty years, almost every country has experienced similar changes of female educational opportunity and of female labor force participation. Along with these tremendous changes, the form of marriage and family are also transforming. Some people argue that the relationship between the increasing female economic opportunity and the weakening of marriage institution is causal, and they propose two alternative hypotheses. The first hypothesis posits that increasing female economic independence will decrease the gain from marriage for women, and therefore make economically more independent women lesser likely to marry (Becker et al. 1977). The second hypothesis posits that female economic independence will lead to their delay in marriage, but not any substantial decline of marriage (Oppenheimer 1988). Adjudicating answer to this debate over these two alternative hypotheses will help address the question about whether or not the marriage as an institution is declining (Waite et al. 2000). The goal of this article is to contribute to this debate by documenting trends in the educational differentials in marriage delayed and marriage foregone for successive cohorts of women born in Taiwan between 1879 and 1991.

THEORETICAL BACKGROUND

In his book *A Treatise on the Family*, Becker (1981) proposed "the specialization and trading model." He claimed that marriage is a trading behavior between single men and women, and the trade is possible only when the gains for both men and women to be married are higher than the gains for them to remain single. The premise of this argument is that the gains from marriage come from the labor specialization between husband and wife, and that the division of labor which maximizes the gains is men investing more in human capital on market work and women investing more in human capital on domestic work. By exchanging each other's specialized human capital, marriage becomes an interdependent relationship between husband and wife. In Becker's view, as women's economic independence increasing, this gendered specialization will be inefficient. If women invest more in market work, they will become more similar to men and will no longer need to exchange with men for market work. Hence, Becker predicted that when women become economically more independent, the gains from marriage will decrease, and their incentives to marry will also decrease. Becker's theory is a static theory that only compares two marital statuses—single (which may be never married, separated/divorced, or widowed) and married.

Instead of focusing on the static states between single and married, Oppenheimer (1988) emphasizes the timing of marriage. She applied the job-search theory to the analysis of the marriage process. The job-search theory assumes both workers and employers lack the knowledge necessary to achieve a perfect and instantaneous matching of workers to jobs. Therefore, workers need to set up a reservation wage, which is a function of expected returns and costs of searching. When the wage reaches the worker's reservation wage, he/she will accept the job even if this job is not the best job this worker could find because the costs to keep searching are higher than the potential return. Oppenheimer argues that similar theory can also be applied to explain how the spouse-search process works, and there is a reservation wage for an ideal spouse. Based on this theory, she further argues that the changes of marriage timing result from how easily the search process is, and that the transition to adult work role will affect the timing of marriage because it influences the costs and returns of searching. Therefore the change of both men's and women's economic status will affect the mating process and alter the timing of marriage. Although Oppenheimer places more emphasis on men than women when she discusses how the changes in the economic role affect the timing of marriage, she maintains that when female's labor force participation opportunities improve, the uncertainties of

spouse-searching will also increase, thus causing marriage delayed, but not necessarily marriage foregone.

The major difference between Becker's and Oppenheimer's theory is that Becker believes women's gains from marriage are declining as their economic opportunities improve. Oppenheimer believes that the gains from marriage are not declining, and that what we really see is the delay of marriage, which reflected the increasing uncertainties of the spouse search-process, not a retreat from marriage. The gist of the debate between these two hypotheses is whether women are getting less likely to marry as their economic abilities improving, but it is unlikely to answer this question without appropriate attitudinal data. Another practical way to test these two theories is to discern between marriage delayed and marriage forgone, and that is what I seek to document in this paper using a long array of survey data in Taiwan.

EMPIRICAL FINDINGS IN PRIOR RESEARCH

There are many prior studies that have engaged in the theoretical debate between Becker and Oppenheimer. These findings vary in the data, level of analysis, and proxies for economic independence. Before Oppenheimer (1995) first proposes the theoretical importance of discerning between marriage delayed and marriage forgone,

most researchers take the relationship between women's economic independence and marriage rates as the key to adjudicate between these two hypotheses. Findings about the relationship between women's economic independence and marriage rates are mixed.

In most aggregate-level analyses, the relationship between women's economic independence and marriage rates is negative (Preston and Richards 1975; Lichter et al. 1991; Fossett and Kiecolt 1993; McLanahan and Casper 1995), except Mare and Winship (1991). Mare and Winship (1991) find that, although the relationship between white women's expected employment status and marriage formation in their research is negative, women's educational attainment and current earnings are positively related to marriage formation. However, these studies are criticized on two grounds. First, the economic independence hypothesis refers to individual-level behavior, and thus testing it with aggregate-level data may potentially lead to the ecological fallacy (Oppenheimer 1997). Second, data used by these aggregate-level analyses are cross-sectional data, and it is hard to determine the temporal order or the spatial connections that are essential to establishing causal connections in observational studies (Oppenheimer 1997).

In the individual-level analyses, by contrast, the relationship between women's

economic independence and marriage rates in most individual-level analyses is either positive (Goldscheider and Waite 1986; Lichter et al. 1992; Oppenheimer, Blossfeld, and Wackerow 1995; Oppenheimer and Lew 1995; Ono 2003) or neutral (Cherlin 1980; Blossfeld and Huinink 1991; Blossfeld and Jaenichen 1992; Blossfeld and Rohwer 1995; Hoem 1995; Robert and Blossfeld 1995; Xie et al. 2003).

There are some exceptions to the positive relationship between economic independence and marriage rates in these individual-level studies. The relationship between economic independence and marriage rates is negative in Italy (Pinnelli and De Rose 1995) and Japan (Raymo 2003; Ono 2003). Raymo (2003) argues that the family system in Italy and Japan is more traditional than other Western countries. Therefore, sharply differentiated gender roles in Italy and Japan make it difficult for women to combine work and family. The family system in Taiwan is considered more traditional than Western countries as well, thus studying the relationship between Taiwanese women's economic independence and marriage rates can provide additional evidence on the debate between Becker and Oppenheimer.

Some studies try to adjudicate between marriage delayed and marriage forgone. A common challenge for all prior research is right-censoring, which makes it difficult for researchers to ascertain the eventual probabilities of marriage for women. There

are two ways to deal with this challenge in prior research. The first way is to use statistical models to forecast the eventual probabilities of marriage for women. Goldstein and Kenney (2001) use the Coale-McNeil model and the Hernes model to forecast women's eventual probabilities of marriage after 1970 for successive cohorts in the United States. Their results indicate that although college graduates are less likely to marry than noncollege graduates at younger ages, their eventual probabilities of marriage will catch up and even exceed noncollege graduates at older ages. Thus it is consistent with the marriage-delayed hypothesis rather than the marriage-forgone hypothesis. However, forecasting has a major drawback. Forecasting models predict people's marriage behavior under strong assumptions and is based on the observed information in the past. If the assumption of certain forecasting model is inconsistent with the reality or there is a huge historical change, then the forecast will deviate substantially from truth (Cherlin 1990).

The second way to deal with the challenge of right-censoring is to extending the observation period. Because the analysis is based on observed data, it can avoid the aforementioned drawback of forecasting. Sweeney (2002) compares the marital history of successive birth cohorts to study the historical trends in marriage formation. With a relatively complete event history data of successive cohorts, she documents a

positive relationship between women's economic independence and marriage rates. Although Sweeney (2002) uses observed rather than forecasting data, she does not differentiate between marriage delayed and marriage forgone. The same problem can also be found in Wong's (2003) study of women's marriage formation in Hong Kong. Wong (2003) finds that both women's educational attainment and job position are positively related with marriage rates. In both Sweeney (2002) and Wong (2003), the discussion is limited to marriage delayed rather than marriage forgone. In this paper, I will analyze both marriage rates and the eventual probabilities of marriage for successive birth cohorts of Taiwanese women, and provide additional evidence on the debate over marriage delayed and marriage forgone.

METHOD AND DATA

DATA

I use data pooled from the 1979 to 2006 waves of Women's Marriage, Fertility, and Employment Surveys (WMFES), a series of repeated cross-sectional surveys conducted in Taiwan that are similar to the June Supplement of the U.S. Current

Population Survey series.[1] Each WMFES included a nationally representative sample of women aged 15 or higher residing in Taiwan, and was conducted by the Directorate General of Budget, Accounting and Statistics of Executive Yuan (DGBAS) in Taiwan. These surveys included information on age at first marriage (measured in years), calendar year in which a respondent was born, and the highest degree a respondent completed, and thus are suitable for the purpose of my analysis. A total of 405,526 respondents were successfully interviewed in these 15 waves of WMFES surveys. After deleting those respondents whose self-reported gender was male and those whose age at first marriage was younger than 12 years old, the analytic sample has a total of 405,463 cases.

VARIABLES

I construct dummy variables to indicate the respondent's birth cohort in the following categories: 1879-1941, 1942-51, 1952-61, 1962-71, and 1972-91, with the oldest cohort being the reference category. The respondents' educational attainment is coded into four dummy variables: fewer than 12 years of schooling, 12 years of schooling (high school diploma and Taiwan does not have a GED program; and this is

[1] These included a total of 15 waves of WMFES, conducted annually from 1979 to 1988, and irregularly afterwards in1990, 1993, 2000, 2003, and 2006.

the reference category), 13-15 years of schooling (a set of schools that confer a degree comparable to the associate degree in the United States), and 16 or more years of schooling (a bachelor's degree or higher).

First marriage is the event of interest. For the dependent variable of marriage rates, I construct a binary indicator for the event of a first marriage, and a continuous variable for the waiting time. For those respondents who reported having experienced the event of a first marriage (event = 1), I use their age at first marriage (in years) as the waiting time. For those respondents who reported never having been married at the time of the survey interview, they were "censored" (event = 0) and the waiting time is their age at survey interview.

Table 1 presents the descriptive statistics of the analytic sample.

[Table 1 about here]

MODELS

I use the Kaplan-Meier estimator for the proportions of women who had never been married by age *t* (Kaplan and Meier 1958; Cox and Oakes 1984:48-50):

$$\hat{S(t)} = \prod^{(t)} \left(1 - \frac{d_j}{r_j} \right)$$

where r_j is the number of respondents who had never experienced the event of a

first marriage by age *t*; d_j is the number of respondents who had experienced the event of a first marriage at age *t*.

I also use the stratified log-rank test to evaluate whether the Kaplan-Meier curves for women with different educational level are statistically equivalent within birth cohorts (Hosmer and Lemeshow 1999; Kleinbaum and Klein 2005):

$$\text{Stratified log-rank statistic} = \frac{\sum_s \sum_j \left(O_{ijs} - E_{ijs}\right)^2}{\sum_s \sum_j V_{sj}}$$

where O_{ijs} is the observed number of respondents who had experienced the event of a first marriage in educational group *i* at time *j* within birth cohort *s*, E_{ijs} is the expected number of respondents who would have experienced the event of first marriage in educational group *i* at time *j* within birth cohort *s* if the Kaplan-Meier curves are statistically equivalent for women with all educational level, and V_{sj} is the variance of $O_{ijs} - E_{ijs}$.

I then estimate the Cox proportional hazard models to verify the Kaplan-Meier results. The Cox proportional hazard models assume that the differentials in marriage rates *h(t)* are multiplicative across respondents in different birth cohorts and with different levels of educational attainment:

$$h(t) = h_0(t)\exp(\beta_1 \cdot cohort + \beta_2 \cdot education).$$

With the Cox model specification, I also test whether or not educational differentials in marriage rates have changed across successive birth cohorts of women in Taiwan:

$$h(t) = h_0(t)\exp(\beta_1 \cdot cohort + \beta_2 \cdot education + \beta_3 \cdot cohort \times education) .$$

RESULTS

Figure 1 presents the Kaplan-Meier estimates of proportions of Taiwanese women who had ever been married by different levels of educational attainment. There is no crossing between the four groups of women in their estimated age-specific proportions of ever having been married. These results suggest that less educated women not only married earlier but also have higher chances to have ever been married at all ages (and thus ever eventually been married) than their more educated counterparts.

[Figure 1 about here]

I then break down these Kaplan-Meier estimates by birth cohorts (see Figure 2). The patterns are similar to those presented in Figure 1. However, unlike those results for successive birth cohorts of American women documented in Goldstein and Kenney (2001) and in Sweeney (2002), there is no crossing in the age patterns of proportions of ever having been married for Taiwanese women in all birth cohorts.

Note also that the educational differentials in the proportions of Taiwanese women having ever been married are smaller in the earlier birth cohorts than in the latter birth cohorts. To my knowledge, except Raymo's (2003) study about Japanese women's transition to first marry, no other studies have documented similar trends in the educational differentials in the proportions of women having ever been married in Taiwan or in other countries. Even if Raymo have found similar patterns in Japan, he does not offer a persuasive explanation for this trend. Therefore, how to explain the increasing educational differentials in the proportions of Taiwanese women having ever been married across birth cohorts, and whether the reasons for the trends observed in Taiwan and Japan are the same need further research.

[Figure 2 about here]

I also use stratified log-rank test to evaluate whether the Kaplan-Meier estimates for women with different educational level are statistically equivalent within different birth cohorts. The differences among the Kaplan-Meier estimates of women with different educational level within different birth cohorts are significant ($P> \chi^2 =0.000, \chi^2_3 = 39628.29$). This result provides another evidence for supporting the conclusion that less educated women not only married earlier but also have higher chances to have ever been married at all ages than their more educated

counterparts within all birth cohorts.

The lack of crossings in the Kaplan-Meier survival curves presented in Figure 1 and Figure 2 also add to my confidence that there is unlikely to be violations to the proportionality hazards assumptions. Hence, I proceed to estimate Cox regression models to parametrically verify the nonparametric explorations of marriage formation behaviors of Taiwanese women. These results are presented in Table 2.

[Table 2 about here]

As shown in Model 1 of Table 2, more highly educated women have lower rates of first marriage than lower educated women. The differentials are monotonic across years of schooling. Taiwanese women born in more recent cohorts have lower rates of first marriage than those born in earlier cohorts. This trend of declining rates in first marriage across birth cohorts in Taiwan is similar to those patterns documented in other industrial countries, but the negative relationship between women's education and marriage rate is inconsistent with the relationship in most industrial countries, save for Italy and Japan (Blossfeld 1995; Raymo 2003, 2005).

Results for marriage rates reported in Model 2 including interactions between years of schooling and birth cohorts significantly improves the goodness of fit, compared to Model 1 that constrains the interactions to be zero (with the difference of

-2log likelihood being 1,650 and $p<.001$). Hence, these results on marriage rates are consistent with the nonparametric Kaplan-Meier estimates of the probabilities of having ever been married. The educational differentials in marriage rates are larger among more recent birth cohorts than among earlier birth cohorts.

In sum, Taiwanese women born in more recent cohorts marry later and fewer than their counterparts born in earlier cohorts. Moreover, Taiwanese women with higher education marry later and fewer than their counterparts with lower education. The educational differentials have become even larger for more recent birth cohorts of women.

CONCLUSION

I apply Kaplan-Meier estimator and the Cox proportional hazard models to analyze the pooled data from 15 waves of the Women's Marriage, Fertility, and Employment Surveys to document trends in the educational differentials in delayed marriage and foregone marriage for successive cohorts of women born in Taiwan between 1879 and 1991. Consistent with findings reported in almost the entire industrialized world, Taiwanese women in more recent birth cohorts marry less and marry fewer than those in earlier birth cohorts. However, I also document results

that are at sharp contrast with those reported using data collected in the United States and many other industrialized nations—highly educated Taiwanese women, compared with their lower educated counterparts, not only marry later but also marry fewer. The educational differentials have increased among more recent cohorts of Taiwan women than those in earlier birth cohorts.

These findings provide new thought materials for the debate between Becker and Oppenheimer regarding the relationship between female economic independence (as indicated by women's increased educational attainment) and their marriage formation behaviors. This negative relationship between women's educational attainment and their rates and eventual probability of ever having been married suggests that Oppenheimer's theory on marriage formation, despite being widely supported by data collected in the Western world, cannot explain the marriage process in Taiwan.

Nonetheless, it is unclear whether or not trends in delayed marriage and foregone marriage as documented in this paper really reflects a decrease in gains from marriage, or perhaps there are other explanations for these trends. Furthermore, there is no reasonable explanation for the increasing trend in educational differentials in marriage rates and the probabilities of ever having been married across birth cohorts. These questions remain a puzzle and demand further research.

REFERENCES

Becker, Gary S. 1981. *A Treatise on the Family.* Cambridge, MA: Harvard University Press.

Becker, Gary S., Murphy, Kevin M., and Tarmura, Robert. 1977. "An Economic Analysis of Marital Instability." *The Journal of Political Economy* 85(6): 1141-1187.

Blossfeld, Hans-Peter. 1995. "Changes in the Process of Family Formation and Women's Growing Economic Independence: A Comparison of Nine Countries." Pp. 3-32 in *The New Role of Women: Family Formation in Modern Societies*, edited by H.-P. Blossfeld. Boulder, CO: Westview.

Blossfeld, Hans-Peter and Jaenichen, Ursula. 1992. "Educational Expansion and Changes in Women's Entry into Marriage and Motherhood in the Federal Republic of Germany." *Journal of Marriage and the Family* 54(2): 302-15.

Blossfeld, Hans-Peter and Rohwer, Götz. 1995. "West Germany." Pp. 56-76 in *The New Role of Women: Family Formation in Modern Societies*, edited by H.-P. Blossfeld. Boulder, CO: Westview.

Blossfeld, Hans-Peter and Huinink, Johannes. 1991. "Human Capital Investments or Norms of Role Transition? How Women's Schooling and Career Affect the Process of Family Formation." *The American Journal of Sociology* 97(1): 143-68.

Cherlin, Andrew. 1980. "Postponing Marriage: The Influence of Young Women's Work Expectations." *Journal of Marriage and Family* 42(2): 355-65.

----. 1990. "The Strange Career of the "Harvard-Yale Study"." *Public Opin Q* 54(1): 117-24.

Cox, D.R. and Oakes, D. 1984 *Analysis of Survival Data*. London: Chapman and Hall.

Fossett, Mark A. and Kiecolt, K. Jill. 1993. "Mate Availability and Family Structure among African Americans in U. S. Metropolitan Areas." *Journal of Marriage and Family* 55(2): 288-302.

Goldscheider, Frances Kobrin and Waite, Linda J.1986. "Sex Differences in the Entry Into Marriage." *The American Journal of Sociology* 92(1): 91-109.

Goldstein, Joshua R. and Kenney, Catherine T. 2001. "Marriage Delayed or Marriage Forgone? New Cohort Forecasts of First Marriage for U.S. Women." *American Sociological Review* 66: 506-19.

Hoem, Britta. 1995. "Sweden." Pp. 35-55 in *The New Role of Women: Family Formation in Modern Societies*, edited by H.-P. Blossfeld. Boulder, CO: Westview.

Hosmer, David W. and Lemeshow, Stanley. 1999. *Applied Survival Analysis: regression modeling of time to event data.* New York: Wiley.

Kaplan, E. L. and Meier, P. 1958. Nonparametric estimation from incomplete observations. *J. Am. Statist. Assoc.,* 53, 457-481.

Kleinbaum, David G. and Klein, Mitchel. 2005. *Survival analysis: a self-learning text.* New York: Springer.

Lichter, D. T., LeClere, F. B., and McLaughlin, D. K. 1991. "Local Marriage Markets and the Marital Behavior of Black and White Women." *The American Journal of Sociology* 96(4): 843-67.

Lichter, D. T., McLaughlin, Diane K., Kephart, George, and Landry, David J. 1992. "Race and the Retreat from Marriage: A Shortage of Marriageable Men?" *American Sociological Review* 57(6): 781-99.

Mare, Robert D. and Winship, Christopher. 1991. "Socioeconomic Change and the Decline of Marriage for Blacks and Whites." Pp. 175-202 in *The Urban underclass*, edited by Christopher Jencks and Paul E. Peterson Washington D.C.: Brookings Institution Press.

McLanahan, Sara and Casper, Lynne. 1995. "Growing Diversity and Inequality in the American Family." Pp. (2)1-45 in *State of the Union: America in the 1990s*, edited by Reynolds Farley. New York: Russell Sage Foundation.

Ono, Hiromi. 2003. "Women's Economic Standing, Marriage Timing, and Cross-National Contexts of Gender." *Journal of Marriage and Family* 65(2): 275-86.

Oppenheimer, Valerie K. 1988. "A Theory of Marriage Timing." *The American Journal of Sociology* 94: 563-91.

----. 1997. "Women's Employment and the Gain to Marriage: The Specialization and

Trading Model." *Annual Review of Sociology* 23: 431-53.

Oppenheimer, V. K., Blossfeld, H.-P., and Wackerow, A. 1995. "United States of America." Pp. 150-173 in *The New Role of Women: Family Formation in Modern Societies*, edited by H.-P. Blossfeld. Boulder, CO: Westview.

Oppenheimer, V. K. and Lew, V. 1995. "American Marriage Formation in the 1980s: How Important Was Women's Economic Independence?" Pp. 105-38 in *Gender and family change in industrialized countries*, edited by Kearen Oppenheim Mason and An-Maritt Jensen. New York: Oxford University Press.

Pinnelli, Antonella and De Rose, Allessandra. 1995. "Italy." Pp. 174-190 in *The New Role of Women: Family Formation in Modern Societies*, edited by H.-P. Blossfeld. Boulder, CO: Westview.

Preston, Samuel H. and Richards, Alan Thomas. 1975. "The Influence of Women's Work Opportunities on Marriage Rates." *Demography* 12(2): 209-22.

Raymo, James M. 2003. "Educational Attainment and the Transition to First Marriage among Japanese Women." *Demography* 40: 83-103.

Raymo, James M. and Iwasawa, Miho. 2005. "Marriage Market Mismatches in Japan: An Alternative View of the Relationship between Women's Education and Marriage." *American Sociological Review* 70: 801-22.

Robert, Peter and Blossfeld, Hans-Peter. 1995. "Hungary." Pp. 211-28 in *The New Role of Women: Family Formation in Modern Societies*, edited by H.-P. Blossfeld. Boulder, CO: Westview.

Sweeney, Megan M. 2002. "Two Decades of Family Change: The Shifting Economic Foundations of Marriage." *American Sociological Review* 67: 132-47.

Waite, Linda J. and Bachrach, C. 2000 *The Ties That Bind: perspectives on marriage and cohabitation.* New York: Aldine de Gruyter.

Wong, Odalia M. H. 2003. "Postponement or abandonment of marriage? Evidence from Hong Kong." *Journal of Comparative Family Studies* 34(4): 531-54.

Xie, Yu, Raymo, James M., Goyette, Kimberly, and Arland, Thornton 2003. "Economic Potential and Entry into Marriage and Cohabitation." *Demography* 40(2): 351-67.

Table 1. Descriptive Statistics (Sample Means with Standard Deviations in Parentheses) for Women who Had Ever Been Married and Never Married

Variable	Ever-married	Never-married	Total
Age at first marriage	21.62	21.45	21.57
	(3.42)	(6.54)	(4.55)
Years of schooling			
Fewer than 12 years	.78	.28	.64
12 years	.15	.48	.25
13-15 years	.04	.11	.06
16 or more years	.03	.13	.06
Birth cohort			
1879-1941	.41	.01	.29
1942-51	.2	.02	.15
1952-61	.26	.2	.24
1962-71	.1	.52	.22
1972-91	.02	.26	.09
Number of cases	288230	117233	405463

Source: Women's Marriage, Fertility and Employment Surveys: 1979 – 2006.

Table 2. Coefficients of Women's Rates of First Marriage, Cox models (N=405,463)

Variable	Model 1	Model 2
Years of schooling		
Fewer than 12 years	.68 ***	.55 ***
12 years	---	---
13 – 15 years	-.39 ***	-.16 ***
16 or more years	-.7 ***	-.36 ***
Birth cohort		
1879-1941	---	---
1942-51	-.18 ***	-.35 ***
1952-61	-.31 ***	-.46 ***
1962-71	-.55 ***	-.69 ***
1972-91	-.89 ***	-.8 ***
Interaction term		
1942-51 × Fewer than 12 years		.17 ***
1942-51 × 13 – 15 years		-.04
1942-51 × 16 or more years		.04
1952-61 × Fewer than 12 years		.17 ***
1952-61 × 13 – 15 years		-.22 ***
1952-61 × 16 or more years		-.23 ***
1962-71 × Fewer than 12 years		.19 ***
1962-71 × 13 – 15 years		-.28 ***
1962-71 × 16 or more years		-.37 ***
1972-91 × Fewer than 12 years		.16 ***
1972-91 × 13 – 15 years		-.63 ***
1972-91 × 16 or more years		-1.3 ***
Log likelihood	-3,396,572	-3,395,747

* p < .05 ** p < .01 *** p< .001

Source: Women's Marriage, Fertility and Employment Surveys: 1979 – 2006.

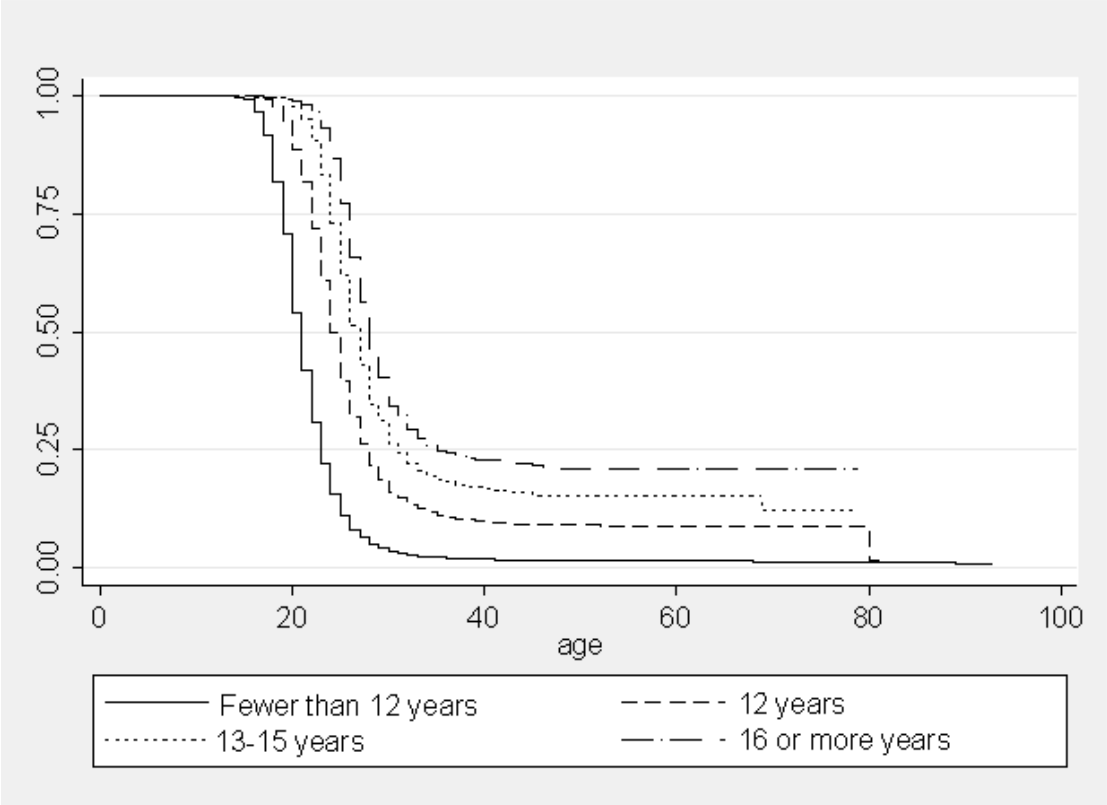

Figure 1. Kaplan-Meier Estimates of Survivorships of First Marriages for Taiwanese Women, by Years of Schooling (N=405,463)

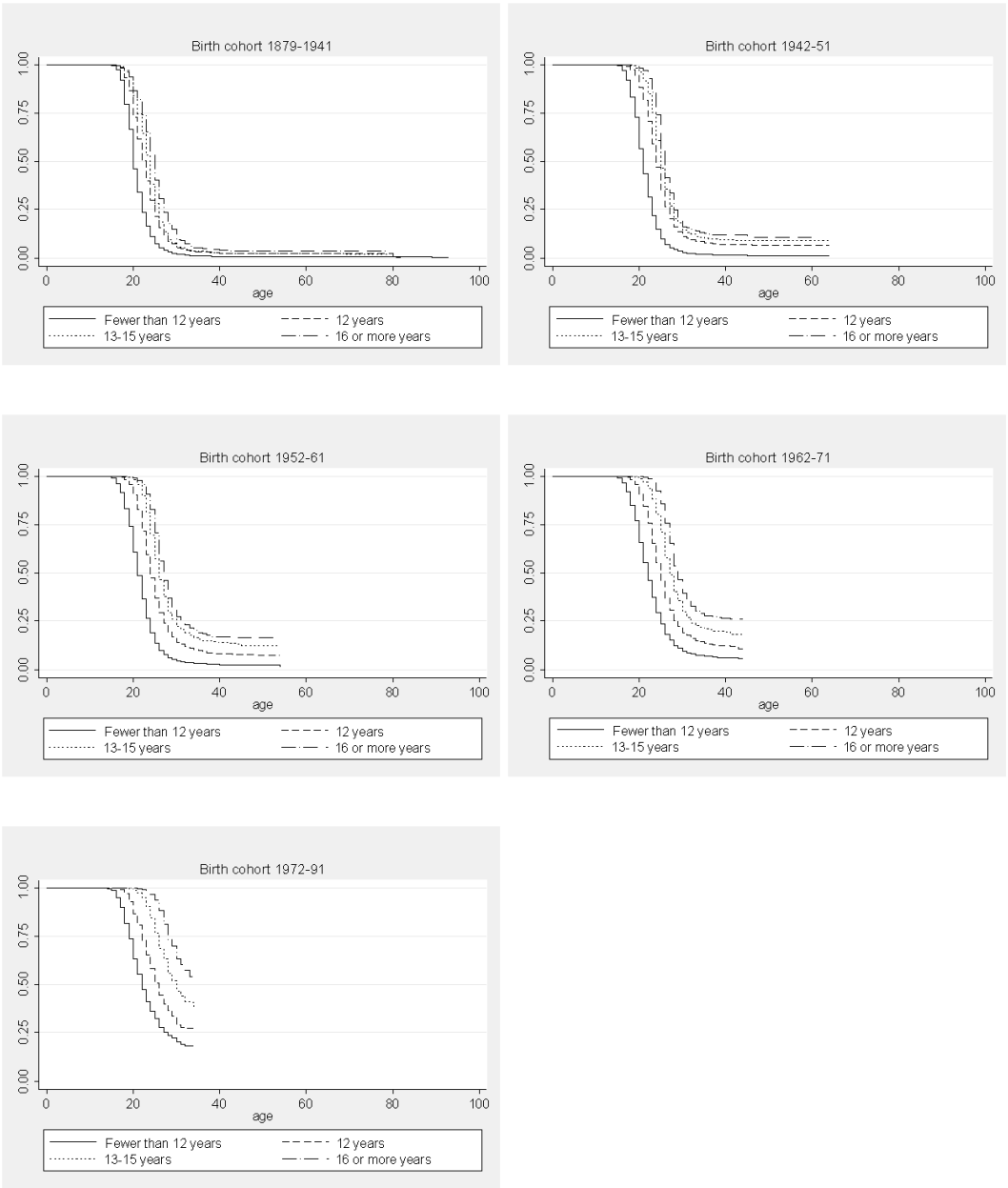

Figure 2. Kaplan-Meier Estimates of Survivorships of First Marriages for Taiwanese Women, by Birth Cohorts and Years of Schooling (N=405,463)