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Population change in East Asia
Guest Editor: Edward Jow-Ching Tu

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Asian Education and Development Studies

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Introduction

Population change in East Asia: demographic causes, socioeconomic consequences and policy implications for mainland China, Taiwan and Hong Kong

In the last few decades, several East Asian populations have joined Europe in the low-fertility league. Japan, Singapore, Taiwan, South Korea, and Hong Kong SAR are among the ultra-low fertility countries in the whole world, and even China has reached fertility levels lower than those in many European countries.

Why are fertility patterns in so many industrialized and post-industrialized societies declining so rapidly in most newly industrialized countries especially in East Asia, and especially after countries have adopted the capitalist and market economy as the preferred approach to improve the lives of their population?

The first paper discusses general pattern, causes, consequences, and policy implications in East Asia. The second paper introduces family-work reconciliation policies, including maternal and paternal leave, subsidized child care and healthcare, and work facilities that allow for breastfeeding because family-friendly measures and gender ideologies are intractably linked in Hong Kong influenced by Western ideas and traditional Chinese family values. Given the relatively higher sex ratio at birth in Chinese societies, many men eventually have to locate the potential brides from other East Asia country, the third paper analyzes factors associated with the symptoms of psychological depression and anxiety of immigrant brides in Taiwan. It shows perceived discrimination, life satisfaction, and socio-cultural barriers are major reasons for psychological depression and anxiety among immigrant brides. Under economic reform for last 35 years, many one-child families have to migrate to large cities to find job, the fourth paper compares individual characteristics, family endowment, and institutional factors between migrant families with one child and those non one-child migrant families. It is found that family endowment disclose major difference between the two types of migrant families.

The consequences of shifts in fertility will have substantial costs on many aspects of life: aging, health care costs, marital and family relationships, labor markets, immigration, the fiscal sustainability of social insurance programs, and schooling.

The fifth paper studies progress in women’s health in terms of MMR and hospitalized delivery rate in past 20 years in China by focusing on differentials in women’s health including life expectancy, hazardous working environment, and health care services by region and urban/rural areas. Gender inequality, elders’ health status as well as main source of daily living differed by gender are considered and policy implications are suggested. Any aging society is always facing the reshaping the patterns of living arrangements, the sixth paper studies the changes and trends of living arrangements of Chinese elderly in Mainland China. The results show that the proportion of the elderly people living with children was decreasing; proportions of the “living alone” and “living with spouse independently” have increased significantly and those who are living alone are in disadvantaged conditions; and the changes and trends between rural and urban regions are very different. Although co-residence with children when one becomes old is an ideal in Chinese society, the drastic socioeconomic development in Taiwan has brought some fundamental changes to living arrangements of the elderly population. The seventh paper examines the relationship between family living arrangements and elderly health in
Taiwan, given the secular trend of more elderly persons choosing to live with their spouse or to live independently. The results show that both the associations of living arrangements and co-residence preference with that mortality risk were largely weakened when controlling for socio-demographics, health status, health behaviors, and social relationships. Only among respondents expressing preference for co-residence were living arrangements associated with mortality risks, and these effects increased with age. The dynamics of living arrangements among the elderly and elderly care policies in Taiwan are discussed.

Edward Jow-Ching Tu

Introduction
Ultra-low fertility, gender equity and policy considerations

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Abstract

Purpose – The purpose of this paper is to focus on the issue and the reasons why fertility patterns in many industrialized and post-industrialized societies decline so rapidly, primarily in newly industrialized countries, particularly in East Asia, and especially after the countries have adopted the capitalist and market economy as the preferred approach to improve the lives of their population.

Design/methodology/approach – The authors discuss gender equality and the relationship between fertility and female labor force participation in industrialized and post-industrialized countries, in the context of role incompatibility, mainly for women and the level of the strength and rigidity of family- and gender-role norms/attitudes that affect the behaviors of men and women.

Findings – The existing family-related policies and programs which have reduced the role conflict and incompatibility experienced by working mothers are reviewed and discussed under national orientations toward the resolution of work–family conflict since they could affect the relevance, acceptance, significance and effectiveness of policies being developed and approved to carry on under institutional context within a nation.

Originality/value – Specific strategies and policies to reduce role incompatibility and childcare arrangements and their costs are discussed, especially for East Asian nations.

Keywords Childcare arrangements, Gender equity, Gender-role attitudes, Motherhood and work, Nations of families/individuals, Role incompatibility

Paper type Research paper

Introduction

In the last few decades, several Asian populations have joined Europe in the low-fertility league. Japan, Singapore, Taiwan, South Korea and Hong Kong SAR are among the ultra-low fertility countries in the whole world, and even China has reached fertility levels lower than those in many European countries. In 2011 the total fertility rates in Japan, South Korea, Taiwan, Hong Kong and Singapore were below 1.4 (Figure 1), around the level found in Germany, Italy, Spain, Ukraine and Poland. At a slightly higher level of 1.6 are China, Russia and Thailand (Figure 2). Table I also provides fertility changes and fertility policies in selected East Asia nations and societies.

The consequences of shifts in fertility (even if moderated or even partially reversed in the future) will have substantial consequences on many aspects of life: aging, health-care costs, marital and family relationships, labor markets, immigration, the fiscal sustainability of social insurance programs and schooling. If the current fertility trends persist, the outcome will have profound consequences on what it means to be a “nation” and on what are the acceptable social relationships within a nation-state due to potentially more immigrants and diminishing relatives. The current national and international population projections of the rate of natural increase imply either unsustainable large reductions in the working-age
population or substantially higher levels of the influx of “non-nationals” (or a little of both). Demography is destiny.

What happens to the human fertility trends? Why are fertility patterns in so many industrialized and post-industrialized societies declining and declining so rapidly in most newly industrialized countries especially in East Asia, and especially after the countries have adopted the capitalist and market economy as the preferred approach to improve the population or substantially higher levels of the influx of “non-nationals” (or a little of both). Demography is destiny.

What happens to the human fertility trends? Why are fertility patterns in so many industrialized and post-industrialized societies declining and declining so rapidly in most newly industrialized countries especially in East Asia, and especially after the countries have adopted the capitalist and market economy as the preferred approach to improve the
lives of their population? This paper intends to discuss these questions by focusing on the social and demographic changes and changes in the level of gender equity over time in family-oriented and in individual-oriented institutions in East Asian countries and their interaction with the transition from high to low fertility.

Prior to industrialization, married couples had clear divisions of labor. Both household work and child-rearing and caring tasks are performed more or less simultaneously by wives. Husbands limit their family contributions to being a good provider. In both historical and contemporary preindustrial societies, non-mechanized agricultural tasks and piecework could be combined with child supervision without much jeopardy to the child or a noticeable shortfall of economic productivity (Brewster and Rindfuss, 2000). As industrialization developed and carried on, however, it became increasingly incompatible for wives to carry out childcare along with economically productive work. Today, work locations are usually some distance from home, and work schedules do not have the flexibility required by families with children. Therefore, this incompatible circumstances leads to more and more women and men choosing lifetime childlessness, which is viewed as a revolution in human affairs. This revolution seriously differs from the traditional family value that leaving a descendant has been an integral part of the major meaning of prosperity and happiness for the typical person and for humans as a major species in human history.

In the past few decades, sociologists, demographers and economists have studied and learned much about the relationship between fertility, motherhood and women’s employment since more and more women have joined the labor force and yet the answer to whether ultra-low fertility is becoming a long-lasting feature remains unclear. In spite of this vagueness, many nations, both industrialized and developing, have formulated policies based on the inverse relationship between fertility and women’s employment as two central aspects of women’s lives.

<table>
<thead>
<tr>
<th>Country/area</th>
<th>Year in which replacement fertility was reached</th>
<th>Year in which anti-natalist policy was reversed</th>
<th>Current fertility policies</th>
<th>Total fertility in 2015*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hong Kong</td>
<td>1980</td>
<td>1998</td>
<td>Child allowance from salaries tax, childcare/pre-primary service provision and subsidies, expand of childcare facilities, maternity leave</td>
<td>1.18</td>
</tr>
<tr>
<td>Japan</td>
<td>1973</td>
<td>1990</td>
<td>Child allowance, childcare/pre-primary service provision and subsidies, expand of childcare facilities, maternity and childcare leave</td>
<td>1.40</td>
</tr>
<tr>
<td>Singapore</td>
<td>1975</td>
<td>1987</td>
<td>Priority in getting access to a housing and development board apartments, tax rebates, baby bonus, maternity and childcare leave</td>
<td>0.81</td>
</tr>
<tr>
<td>South Korea</td>
<td>1984</td>
<td>1996</td>
<td>Childcare/pre-primary service provision and subsidies, expand of childcare facilities, child allowance from salaries tax, maternity leave, parental leave and limited childcare leave</td>
<td>1.25</td>
</tr>
<tr>
<td>Taiwan</td>
<td>1984</td>
<td>1992</td>
<td>Baby bonus, child allowance, childcare/pre-primary service provision and subsidies, expand of childcare facilities, maternity leave</td>
<td>1.12</td>
</tr>
</tbody>
</table>

Table I. Fertility changes and fertility policies, selected East Asian countries

In this essay, we bring gender equity issue which is about perceptions of fairness and opportunity (McDonald, 2000a, 2000b, 2013) into the discussion of the relationship between fertility and female labor force participation in industrialized and post-industrialized countries, in the context of role incompatibility (Brewster and Rindfuss, 2000; Rindfuss et al., 2003) mainly for women, and the level of the strength and rigidity of family- and gender-role norms/attitudes that affect the behavior of men and women (Figure 3). The gender-role attitudes include a highly conservative one, egalitarian and a liberal one with conservative/negative views on whether mothers should work (Brinton and Lee, 2012). Furthermore, the existing family-related policies and programs which have reduced the role conflict and incompatibility experienced by working mothers are reviewed and discussed. National orientations toward the resolution of work–family conflict are compared between nations of families and nations of individuals. For nations of families, the extended family has (primacy) dominance in all important life decisions (e.g. marriage and childbearing) and family networks typically provide services ranging from childcare to banking. For nations of individuals, they support a strong philosophy of individualism and social equality (Chesnais, 1996; Brewster and Rindfuss, 2000). Such comparison could help us to comprehend the relevance, acceptance, significance and effectiveness of policies being developed and approved to carry on under institutional context within a nation (Figure 3).

**Women’s work, role incompatibility and fertility**

Social and economic change fundamentally altered major aspects of women’s lives in the world. Dramatic change has occurred in two major roles closely related to childbearing and rearing: work and marriage roles. Countries accommodating these changing work and marriage roles are closely tied to the observed changes in fertility. Under the difficult choice encountering women, they either limit their fertility to accommodate their labor force activity, or they adjust their labor force behavior to their fertility, but most likely women do both because changes in gender roles lead to women increasing their participation in the labor market but men only slightly increase their participation in the household work.

![Figure 3. Changing and variable nature of female role incompatibility and potential effective policy considerations](image_url)
For those societies dominated by a strong male breadwinner ideology, i.e. either conservative gender-role attitudes or liberal ones with conservative/negative views of working mother, the majority of women reluctantly attempt to balance the act of motherhood and job market (Brinton and Lee, 2012).

Traditionally, a common feature regarding a family system is that adult men are assigned the principal role of provider and adult women are assigned the role of homemaker and childrearer. In general, for women the expectation is that they would quit work regardless whether it is career-type or just ordinary-type jobs after they married. If they resume working, it would be only after the children attain a certain age as they need less attention from their mother. Certainly there are variations under different cultural, religious and normative reasons used to support this family system (Rindfuss et al., 2003). Furthermore, Rindfuss et al. (2003) distinguished the expected adult roles between men and women if a woman drops out of the labor force for even a relatively short period of time, she gives up the opportunity to earn income during that period, and this, in turn, raises the cost of child-rearing. The opportunity cost of childbearing increases as the actual or expected wage rate of the woman goes up.

The role incompatibility refers to the inappropriateness between mother and worker roles as Stycos and Weller indicated (1967). Most jobs in industrial and post-industrial societies do not permit women to care for their children and perform their job simultaneously especially for those societies with highly conservative and liberal gender-role attitudes (Brinton and Lee, 2012) with few exceptions (such as childcare provider Connelly, 1992). Over the long run, work and work preferences have a dominant influence over fertility, and in the short run, pregnancy and birth is the dominant effect over work (Rindfuss et al., 2003). This conflict or incompatibility between being the parent and the worker has largely affected women the most. Fatherhood has positive effects on both earnings and occupational achievement possibly as a compensating response to traditional divisions of labor and the time constraints imposed by parenthood (Rindfuss et al., 1999).

Rindfuss et al. (2003) indicated that this set of constraints confronting women should be discussed within an institutional context such as religious issues, labor market issues, educational policies and opportunities, legal issues and familial context. These larger institutional forces and the normative and attitudinal context that women face, which is partly determined by these larger institutional contexts, vary across and within countries, as well as over time. These institutional and normative contexts relate to and are influenced by one another and eventually shape the gender-role attitudes and the family- or individual-oriented nation. In addition, under different institutional and normative contexts, it could generate more marital disruption and non-marriage as a result of the ineffective policy which could produce a set of changes within the family which can have fertility consequences (Bumpass, 1990; Joshi, 1998). Specifically, the increased likelihood of non-marriage or divorce makes it much more risky for women to specialize in parenting. Therefore, a rational woman would increase her own stock of human capital with more education and job experience. Once such education and job experience mounted up to some point, this greater human capital reduces a woman’s economic incentives to marry or stay married and may raise further the opportunity costs of childbearing (Rindfuss et al., 2003).

Since the incompatibility between work and child-rearing varies by institutional context and the normative and attitudinal context, also over time and within and across countries, McDonald (2000a, b) refers to differential rates of institutional change in family and in non-familial institutions and Esping-Andersen (1999) discusses the interaction of family, economy and public policy to produce distinct social welfare regimes (Pampel, 2001; Rindfuss et al., 2003). As more women developed the preference to engage in market labor, industrialized, post-industrialized and newly industrialized nations faced the issue of how to accommodate this changing preference and behavioral structure. In Europe and
North America, the efforts and adjustment are operated to reduce the incompatibility between work and mother roles especially for those societies holding egalitarian gender-role attitudes under nations of individuals. However, in East Asia and in newly industrialized nations, there has not been a reduction in this incompatibility, and it may have even increased such as those societies still hold conservative gender-role attitudes under nations of families. This pattern of accommodation is certainly against a backdrop of moderate fertility preferences in most East Asian newly industrialized countries. Most women intend to have two children and very few intend more than three in these countries (Bongaarts, 2002).

Education and career opportunity for women
Education plays a major role in changing the work opportunities available to women especially in East Asia. Even though the educational systems differ widely in their rigidity and the extent to which discrimination against women exists (Allmendinger, 1989; Rindfuss et al., 2003), all countries in East Asia have seen increases in female educational attainment. In fact, educational levels for women now surpass those for men in many of them. The increases in female education suggest that more women search for career-type jobs in order to have a growing income, responsibility and prestige.

Without any doubt, these changes in educational attainment of women and their pursuit of careers generate resistance from various segments including relatives, friends or neighbors making a critical and insulting remark and even legally organized. In some places, women’s education and employment have increased in the past two decades and these changes have been met with resistance of “society as a whole and especially of men, who have insisted that women continue to fulfill their traditional role of mothers and homemakers” (Reher, 1997, p. 277; Ginsborg, 2003, p. 71; Rindfuss et al., 2003). In other countries such as Hong Kong, Singapore and Taiwan, people are more tolerant of women’s employment when young children are not present (Alwin et al., 1992). However, the major concern would still be regarding the effective policy dealing with the role incomparability between motherhood and work for women. Any country, especially in East Asia, that has a profound cultural emphasis on the primacy (dominance) of mothers’ role in child-rearing and the education of children, places very heavy responsibility on the shoulders of the mother in raising happy and well-educated children (Brinton and Lee, 2012). Lack of Institutional concern and interest can place severe pressures and anxieties on women and on families that have adapted by postponing marriage and parenthood (McDonald, 2000a, b).

If individual-level attributes of husbands and wives (such as age and education) still exert little influence over the divisions of household labor, that is, very strong norms and conservative gender-role attitudes and ideologies governing women’s primary responsibility for the household and men’s specialization in market work, then it is difficult to balance females’ work and family responsibility. It is also difficult to develop extensive and relevant policies at the institutional level to improve the role incompatibility especially for those nations of families.

Institutional determinants of role incompatibility
Although women in all countries experience difficulty balancing their work and family responsibilities, it is easier to coordinate these responsibilities in some countries than in others depending on their norms and attitudes governing females’ primary responsibility for the household (Ellingsaeter and Ronsen, 1996; Rindfuss and Brewster, 1996). The role incompatibility mediates the relationship between female labor force participation and fertility (Rindfuss and Brewster, 1996, p. 262), and further that “the negative association between fertility and labor force participation can be expected to diminish as the conflict between work and family responsibilities is reduced – whether by a change in the nature of work life, shifts in the social organization of childcare, or a combination of the two”
Family policies and cash benefits: theoretical perspective

As suggested by Rindfuss et al. (Brewster and Rindfuss, 2000), family-relevant policies have both explicit and implicit policies and are redistributive from pronatalist policies to universal policies considering the financial means, child's age or family size (Hantrais, 1997). Thus, family policies have comprehensive goals, from household income differences are guaranteed not translating into markedly inequitable living standards to promoting and supporting larger family sizes. No matter what the goals and purposes are, all nations' intention is to develop a family policy aiming to regulate social and economic relations within families as well as between families and other social institutions (Wennemo, 1993).

All advanced industrial nations make some type of provision for working families, states' orientations toward families and family policies differ markedly as Rindfuss et al. have indicated (Brewster and Rindfuss, 2000). They described these differences by applying Chesnais' (1996) classification between “nations of families” and “nations of individuals,” which provides a summary of national orientations toward the resolution of work–family conflict. Chesnais (1996) observes two forms of policies in “nations of families”: 1) they are strongly supportive of families comprising a breadwinner father, homemaker mother and their dependent children or 2) they do little which could be taken to mean challenges or interfering with the privileges, rights, and choices of such families. Policies in “nations of individuals” tend to be both accommodating of women's rights and concerned with children's living standards. Moreover, such policies often recognize a diversity of family forms beyond the breadwinner–homemaker model. “Nations of families” tend to still have conservative gender-role attitudes vs “nations of individuals” with egalitarian gender-role attitudes. The former ones are most likely to exist in East Asia and in the rest of Asia.

Strategy and policy to reduce role incompatibility

Rindfuss et al. (2003) pointed out that the most prominent strategy for reducing the incompatibility between work and mother roles is some form of childcare; that is, the mother hands over the care of the child to someone else during the hours that the mother is employed or during the time needed to commute to and from work. As Rindfuss further suggested (Rindfuss and Brewster, 1996; Rindfuss et al., 2003), the incompatibility between work and mother roles is affected by the availability, acceptability, accessibility, quality and cost of childcare. Many countries have struggled with each of these five components until they develop an egalitarian or liberal gender-role attitude and become the most prevalent and widespread one.

Rindfuss et al. (2003) specifically discussed what they mean by these five components as follows. Availability refers to the number of positions or slots available in a country relative to the demand for childcare. Hopefully, childcare services match the demand level and more business and volunteer organizations could participate to provide more available daycare positions.

Acceptability refers to whether the childcare service is viewed positively or negatively by the adult population within a country, i.e. whether small children or a preschool child suffer or not if their mother goes to work. Acceptability can vary by the provider. In many East Asian nations, where fertility is among the lowest and where great emphasis
is still placed on the mother’s responsibility to stay home with young children (Jolivet, 1997), married women living with their mother-in-law(s) are both more likely to work and more likely to have higher than average fertility (Morgan and Hirosima, 1983), suggesting that the mother-in-law is an acceptable provider of childcare.

The convenience or accessibility refers to the degree of childcare availability near the home or workplace. Are facilities available if the child is sick, or are arrangements made with the employer for caring for a sick child? Is childcare available during time of school vacations? (Rindfuss et al., 2003).

Quality and cost refers to the assurance of high-quality care such as center-based care (Desai and Waite, 1991) and the cost of childcare which might influence the timing of fertility. Prospective parents postpone childbearing until they can afford the cost of childcare. College-educated women may be timing their childbearing to coincide with anticipated increases in family income, and hence the ability to afford center-based care (Rindfuss et al., 1996).

The nature of the parents working hours is also an important consideration. Can parents rotate their working hours so that at any given time only one parent is working for either part-time or full-time job? Basically, the strategy requires one of the parents working evenings, nights or weekends. Government and employers need to develop strategies for dual-earner couples with children under 14 years to have at least one parent who could work some schedule other than a fixed daytime, Monday through Friday, schedule (Rindfuss et al., 2003). Furthermore, related to working hours, can stores stay open longer hours in order to make it easier for working parents to shop for the necessities of everyday life?

Furthermore, the family itself could adapt to the changing labor force participation of women and the need/preference for both husband and wife to earn an income. Specifically, could men do more unpaid family work and contribute more hours caring for children (Bianchi, 2000)? Rindfuss et al. (2003) pointed out that men’s behavioral change compensated for women’s increased time spent in the labor force: “men have increased their average hours in unpaid work from low to less low levels, partially substituting for their wives” (Joshi, 1998, p. 171). Men’s greater contribution to unpaid household labor has not been uniform across countries to date especially in East Asia under more conservative gender-role attitudes.

**Childcare arrangements**
Childcare arrangements are probably the most important aspect to deal with role incompatibility. Perhaps the most widely used strategy women adopt to assist them in accommodating their family duties to the demands of paid employment is to surrender responsibility for childcare to fathers, other family members, paid providers, preschools, and, as children age, schools and after-school activities during the hours mothers are engaged in market work. To what degree such alternatives influence the association between female labor force participation and fertility depends on norms/attitudes about child supervision and the availability of providers of acceptable quality at a cost that seems affordable to parental factors (Rindfuss and Brewster, 1996, pp. 270-271; Brewster and Rindfuss, 2000).

Childcare norms and attitudes determine the degree of incompatibility between women’s roles as workers and mothers, which varies with beliefs about appropriate caregivers and the ages at which children need intensive supervision. In short, the more maternal supervision that the norms prescribe, the greater the role incompatibility and, hence, the stronger the negative association between fertility and female labor force activity (Rindfuss and Brewster, 1996; Brewster and Rindfuss, 2000). Egalitarian gender-role attitudes toward working mothers seem to indicate the acceptability of non-maternal care. To some extent...
such positive attitudes is associated with reduced role conflict. It may help the concurrence of high rates of fertility and female labor force participation (Rindfuss and Brewster, 1996). One more important aspect regarding childcare is that child enrollment in publicly funded daycare institutions, including creches (nursery schools), family daycare centers and preschools centers ought to receive some state-funded support. However, in Japan and most East Asian societies, very small proportion of children under the age of three was enrolled in institutions receiving public support (Gauthier, 1996, Table 10.6). Both the availability of suitable childcare centers and the preferences of parents are reflected in the different gender-role attitudes of each society and the nations of families vs the nations of individuals. Certainly the cost of care is highly determined by family- or individual-oriented nation. Is care in state-licensed centers or family daycare homes for children aged three and older publicly funded, at least in part or a combination of private and public providers, parents pay a nominal fee, depending on the income and provider type (Mikkola, 1991; Sundstrom, 1991; David and Starzec, 1991)? Do countries provide subsidized care for the majority of parents or encourage employer-sponsored facilities, and provide subsidies only for the poor and near-poor (Brewster and Rindfuss, 2000)?

Rindfuss et al. (Brewster and Rindfuss, 2000) also indicated that the structure of the educational system has implications for role incompatibility. The age at which children start school and the amount of time they spend at school can affect the extent of work–family conflict experienced by employed mothers. They pointed out that the major concern would be whether children can start kindergarten as early as possible such as at age three and run on irregular hours and are in session for the whole day to women who wish to combine work and child-rearing. In short, it is essential to develop an educational system more friendly to mothers who engage in market work and consistent with the philosophy underlying its family policies.

Incorporating institutional influences

Now it is clear that participation in economically productive work is difficult, if not impossible, for working mothers who are responsible for child-rearing tasks, particularly when the children are of preschool age. But the degree of conflict between work and fertility varies across countries with different gender-role attitudes. Family benefits, maternal or parental leave policies and childcare availability also differ from country to country, as well as over time (Brewster and Rindfuss, 2000).

Brewster and Rindfuss (2000) discussed two important aspects of the social context. First, we need to be fully aware of the norms and the degree of flexible attitudes such as highly conservative, egalitarian or liberal toward women’s roles in the home and the workplace, of the society and its overriding importance of the nation’s philosophical orientation toward family policy and families. Policy effects are dependent on announced policy goals and the nation’s philosophy concerning families and individuals. Policies seek to promote gender equality in areas such as education, employment, wages, participation, health, etc. are likely to have very different effects from superficially similar policies aiming to encourage traditional family relations. Second, individuals may be less willing to bear children when the economy is uncertain, even where family policies and childcare availability reduce work–family conflict and encourage gender equity.

Brewster and Rindfuss (2000) also indicated that the effects of institutional factors on labor force participation rates and fertility are shown through their influence on individual behavior. Thus, we need to clearly and adequately specify the mechanisms by which certain specific policies such as family benefits influence individual behaviors in order to adequately assess the effects of structural factors. Individuals act within contexts, the relationship between individuals’ work and family behaviors has to be under the effects of contextual characteristics. In short, the incompatibility between work and fertility is a factor, and variation in this incompatibility is influenced by social, economic and institutional forces.
Summary and conclusions

Figure 3 summarizes the interrelations among different components of our considerations and how such interconnection eventually influence and change the degree of the role incompatibility. The attitudinal/normative atmosphere regarding various aspects of combining of work and child-rearing and aspects of the linkage between marriage and motherhood is an important dimension dealing with role incompatibility under either the nations of the families or the nations of individuals. In addition, the availability of childcare relative to the demand for childcare is also essential. For instance, are prospective parents aware of the availability of daycare, or do they begin their search after the arrival of a child? Furthermore, maternity leave, pay during maternity leave, flexibility to bring a child to the job site, flexibility of working hours, flexibility to care for a sick child and the ability to do certain work at home are also central to deal with role incompatibility. Similarly, the ability to conduct the business of running a household outside normal working hours is needed to be developed. Are stores open late and/or on weekends? Can government bureaucratic business (ranging from renewing a driver’s license to registering for a government benefit) be conducted outside normal business hours?

Explanations for fertility change must be contingent and contextualized. The effects of increasing labor force participation on fertility depend on institutions that can ease or complicate the task of being a parent and worker. Assuming that increased labor force participation of women will remain high, the implication for fertility depends on the institutional context and on responses by individuals, organizations and governments to the exigencies faced by prospective parents (Brewster and Rindfuss, 2000). Furthermore, the gender-role attitudes are definitely important for any society to attempt the balancing act of motherhood and work in terms of specific policies dealing with childcare arrangements and related concerns.

It seems that fertility well below replacement is not inevitable. But, without appropriate societal responses, demands, pressure and constraints faced by prospective parents potentially could lead to ultra-low fertility. What policies should be considered for countries that already have low fertility but would like to increase it? Some policies, like changing laws that limit the hours that businesses may legally operate, might be easy to implement. Yet, role incompatibility and the linkage between marriage and child-rearing frequently involve deeply held values which are not easily manipulated by policy makers unless gender-role attitudes change from conservative to egalitarian ones. Easing role incompatibility could prove to be an overwhelming challenge in some contexts especially in East Asia since dual-earner (or one-and-a-half income) family model has increasingly become the norm.

Asia’s experiences dealing with role incompatibility differ considerably from those of the West partly due to the prevalent social norms and conservative gender-role attitudes about motherhood, childcare, work and related-policies in this region, with a strong belief that the family is the primary institution responsible for providing care to children. Most Asian countries share the developmental/productive welfare state approach which subordinates welfare development to economic growth (Esping-Andersen, 1997). Public support for the family and for social welfare in these countries remains low. Care provision is heavily reliant on the family. However, such traditional norms/attitudes to some extent have questioned the long-standing assumptions about private and public responsibilities for care in Asia. Therefore, care policy and practices have undergone critical transformations in Asia. The state, family, market and the voluntary sector have all been challenged to redefine their roles in caregiving (Zhang and Yeung, 2012). Various institutional and policy measures as well as behavioral adaptation have been made to provide different forms of assistance in the area of young children's care. For example, Asian men have started to become more involved in childcare (Yeung, 2013), recruiting domestic workers (either foreign or local) for childcare is increasingly practiced by many Asian families (usually by
middle- to high-income families) (Yeoh et al., 1999). There has been unprecedented expansion of women-friendly family and childcare policies in Japan and South Korea since 1990, particularly in the area of family–work reconciliation policies (e.g. parental leave, childcare and elderly care have to some extent boosted the co-modification of care work) (Peng, 2001, 2002, 2005, 2006, 2012).

Given the distinct cultural, traditional conservative gender-role attitudes, socio-economic and political conditions under which care is provided and diverse care policies and practices adopted in the Asian region (Ochiai, 2009), a more careful investigation to address the convergences and divergences regarding recent policy and practice changes in the care for young children across and within regions of Asia is needed (Zhang and Yeung, 2013). How have different Asian countries responded to the recent challenges to care provision? How has the boundary between the family, government, market and voluntary sector shifted over time and across different national contexts? How has the care arrangements for children been reshaped? To what extent have Asian states started to take on more responsibilities in relation to care? Have Asian countries abandoned the developmental/productive welfare state approach? What are the implications of these recent changes in care provision for social stratification by class and gender in Asia?

The variations in the shift of care provision among Asian countries reflect the differences in their underlying norms/attitudes and culture surrounding care, their institutional legacy, and political and economic conditions. Although the family retains its significant role in care provision in Asian societies, care provision has moved from being the sole responsibility of the family and wife to being shared by other sectors to varying extents in different countries. For example, the governments of Japan, South Korea and Singapore have increased their commitment to childcare either by providing more financial support or in-kind services (Zhang and Yeung, 2012). The involvement of the state and the market appears to be more remarkable than that of the community compared with Western nations. In most Asian countries, welfare development remains subordinate to economic growth. Compared with European countries, childcare is far from taken as a public responsibility in Asia and the Asian states remain far less involved in making provision for childcare. In this sense, it is still a long way and there are severe challenges in dealing with the reduction of role incomparability in Asian societies under conservative gender-role attitudes.

Finally, all discussions here assume that the taste and preference remain constant as the demand concept in the micro-economic theory does. However, it is very possible that women’s interest regarding taste and preference are changing as the society becomes deeply involved in the capitalist and market approach to drive and improve its economy. Therefore, women might be more interested in material goods than marriage, childbearing and child-rearing. It is no longer so relevant to deal with the mother and worker role when we discuss the women’s role incompatibility and fertility which would not increase so significantly at all.

References


Further reading


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Significance of family-friendly measures on fertility in Hong Kong

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Abstract

Purpose – Hong Kong entered an ultra-low fertility regime nearly two decades ago (Census and Statistics Department, 2013). The causes of ultra-low fertility in Hong Kong are the same as those in other developed economies (Tu and Lam, 2009). The phenomenon, in most of the western world and East Asian societies, is attributed to the incongruence between individual-oriented and family-oriented institutions (McDonald, 2000), or simply role incompatibility between work and motherhood (Stycos and Weller, 1967). One viable solution to alleviate role incompatibility is to introduce family-work reconciliation policies, including maternal and paternal leaves, subsidized child care and health care and work facilities that allow for breastfeeding (Lappegard, 2010). The purpose of this paper is to assess the family-friendly measures for enhancing fertility.

Design/methodology/approach – The paper analyzes the current demographic conundrum and makes recommendations.

Findings – Subsidized child care is an effective measure if it satisfies the five main criteria, namely, availability, accessibility, acceptability, cost, and quality, suggested by Rindfuss et al. (2003). Other family-friendly measures are inadequate in absolute terms and inferior to those of Asian countries such as Japan, Singapore, and South Korea (Ministry of Manpower, 2014; OECD, 2013). The possibility of shifting away from the ultra-low fertility regime remains doubtful, especially because low fertility is a combined effect of an increasing prevalence of single older women (Census and Statistics Department, 2014), a shift of the utility function of children toward other consumable goods (Inglehart, 1982) and a desire for achieving upward intragenerational and intergenerational social mobility (Ariès, 1980).

Practical implications – Since Hong Kong still subsides in the regime of the lowest-low fertility, an evaluation of the related family-friendly measures will provide constructive insights to the Hong Kong Special Administrative Region Government how to provide incentives to citizens to consider making childbearing decisions.

Originality/value – Because the introduction of family-friendly measures and gender ideologies are intractably linked (Brewster and Rindfuss, 2000), Hong Kong stays in the middle of nations of families and nations of individuals, influenced by western ideas and traditional family values. It is hence worthwhile to examine the effectiveness of different family-friendly measures.

Keywords Role incompatibility, Family-friendly measures, Gender ideologies, Nations of families, Nations of individuals

Paper type Research paper

Introduction

The secular reductions in fertility emerge as a well-established feature of the demography around the globe. Hong Kong has followed suit to experience population aging because of its precipitously declining fertility compounded with long expected longevity in which males enjoyed a long life expectancy of 81.4 years, whereas the female counterparts enjoyed 87.3 years in 2015. A full picture of total fertility rate (TFR) for Hong Kong between 1961 and 2015 is presented in Figure 1. Figure 1 illustrates that the onset of fertility decline in Hong Kong dated to the 1960s and reports a slow gradual decline of 5 percent in TFR from an extremely far above replacement level of 5.17 in 1961 to 4.93 in 1965. The high fertility of
averaging 5.05 births per woman between 1961 and 1965 (indicated by the first stage of high fertility in Figure 1) was followed by an unprecedented rate of decline of 30 percent in TFR between 1961 and 1968, resulting in a TFR of 3.64 by 1968. This large fertility decline of 30 percent has not been experienced before 1961 so Freedman and his associates (Freedman and Adlakha, 1968; Freedman et al., 1969, 1970) identified 1961 as the onset of fertility transition in Hong Kong.

In relation to the fertility decline between 1961 and 1968, Freedman and his associates (Freedman and Adlakha, 1968; Freedman et al., 1969, 1970) accounted for totally different causes for two time periods: 1961-1965 and 1965-1968. It is clearly seen from Table I that the fertility decline between 1961 and 1965 was mainly distorted by the changes in age distribution. By using the direct standardization on the basis of 1961 age distribution, the crude birth rate in 1965 dropped by only 4 percent instead of 19 percent.

In contrast, the fertility decline between 1965 and 1968 was caused by genuine fertility decline rather than the changes in age distribution. Even if the age distribution was held constant, the age standardized fertility rate fell by 25 percent, which is exactly the same as the fertility decline without any age distribution standardization. Freedman and his associates (Freedman and Adlakha, 1968; Freedman et al., 1969, 1970) identified the fertility decline between 1965 and 1968 as a deviation from the classic pattern for a fertility decline. The fertility decline between 1961 and 1968 was characterized by a marked decline in marital fertility among young childbearing aged females. The fertility among the prime childbearing aged females of 25-29 and 30-34 years decreased by 27 and 28 percent, respectively. Freedman and his associates (Freedman and Adlakha, 1968; Freedman et al., 1969, 1970) further explained that fertility decline was partly caused by the active introduction of contraceptives and intrauterine devices to married women by the Hong Kong Family Planning Association. The Hong Kong Family Planning Association was

![Figure 1. Total fertility rate in Hong Kong, 1961-2015](chart.png)

**Sources:** Freedman and Adlakha (1968); Freedman et al. (1969); Freedman et al. (1970); Census and Statistics Department (2013)

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage change in birth rates for years</th>
<th>Total fertility rate</th>
<th>Birth rate standardized on the basis of age distribution for 1961</th>
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<td>5.17</td>
<td>4.93</td>
<td>3.64</td>
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<td>6.20</td>
<td>6.06</td>
<td>5.64</td>
<td>-29</td>
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**Sources:** Freedman and Adlakha (1968), Freedman et al. (1969, 1970)
founded in 1950 as a response to the population explosion flooded by the substantial influx of immigrants from Mainland China during its civil war between 1945 and 1951. It was followed by another massive wave of immigration in 1958 fueled by the escape from the failure of the Great Leap Forward and Great Famine in China. Hence, the imminent task faced by the Hong Kong Family Planning Association was to promote the family planning and birth control under the traditional Chinese values of forming a big family. One of the well-known family planning campaigns of promoting the idea of having two children was “two is enough” and “two is good” in 1975 (Brooks, 1997).

Since 1968, Hong Kong had experienced a rapid and irreversible fall in TFR and completed its demographic transition in 1980, reaching fertility below replacement level[1] of 1.98 births per woman (the third stage of Figure 1). As a whole, fertility transition spanned over almost 20 years. After TFR had dropped below replacement level, fertility appeared to have further declined from 1.98 in 1980 to 1.30 in 1989, indicating that Hong Kong had reached the lowest-low fertility (lowest-low fertility is defined as a period TFR below 1.3 by Kohler et al. (2002)[2] and is shown in the fourth stage of Figure 1). This sustained decline had finally reached a plateau of 0.9 in 1998, resulting in a recurring and irreversible phenomenon of the lowest-low fertility in Hong Kong. The plateau was followed by a slight rebound to 1.204 in 2011, which was caused by an increase in marital fertility (Yip et al., 2015). It marked a sharp contrast to a decade ago, with the major cause of fertility decline as a decrease of both nuptiality and marital fertility (Yip et al., 2015).

Despite the sustained fertility decline from 1980 onwards, it did not arouse any special attention from the colonial government because of a continued positive population growth rate hovering around 1.2 percent in 1980s fueled by the immigration of the Mainlanders via one-way permit system (Census and Statistics Department, 2012a; Leung, 2013). One-way permit originated from the mutual agreement between China and Britain in regulating the number of entrants from China into Hong Kong in 1950 (Lam, 2000). It later evolved into granting entry permits to eligible Mainland Chinese applicants to settle in Hong Kong solely for family reunification. Eligible applicants include the spouses, children, and elderly parents of Hong Kong permanent residents, as well as children with the right of residency in Hong Kong. One-way permits were set at a daily quota of 75, which later increased to 105 in 1993 and 150 in 1995. The applicants are required to apply for one-way permits from the Exit and Entry Administration Offices of the Public Security Bureau of the Mainland at the places of their household registration (Steering Committee on Population Policy of the Hong Kong Special Administrative Region, 2012). One-way permit system initially relieved pressure on fertility of Hong Kong since a preponderance share of 150 daily quotas was given to children aged between 5 and 14 (49.8 percent of total one-way permit holders) in 1998 (Leung, 2013). However, a significant shift in the composition of one-way permit holders to a majority of low-educated women aged between 25 and 44 years (44.6 percent of total one-way permit holders) from 2002 onwards first perplexed Hong Kong Special Administrative Region (HKSAR) Government (Lam, 2017; Leung, 2013). A first-time negative population growth rate (~0.2 percent) was also recorded in 2003 (Census and Statistics Department, 2012a). It alerted the second-term HKSAR Government toward paying attention to the lowest-low fertility.

The second Chief Executive of HKSAR, Donald Tsang, hence advocated forcefully with the slogan “Three children are the best” (Tu and Lam, 2009). His slogan was buttressed by the establishment of the Task Force on Population Policy in 2002. This task force later submitted a report on securing and nurturing a highly skilled and educated population that sustains the development of Hong Kong as a knowledge-based economy in 2003. Limited coverage, however, was paid to suggestions toward fertility, including a continuance of family planning programs emphasizing healthy and planned parenthood, renaming the Family Planning Association of Hong Kong, and granting the same tax allowance of HK
$30,000 for each child born (Task Force on Population Policy, 2002). The government even expressed explicitly that childbearing is subject to an individual choice rather than government policies (Task Force on Population Policy, 2002). The imminent role played by the government was to review whether current policies really achieved the objective of encouraging childbirth, given that the effectiveness of pronatalist policies adopted by low-fertility countries remained doubtful (Task Force on Population Policy, 2002).

Having a slogan without concert measures rendered futile, but another influx of vanguard from the Mainland represents a viable alternative to the conundrum. As a consequence of close social and economic integration between the Mainland and Hong Kong, an increasing number of the Mainland women gave births in Hong Kong. A Mainland-born girl of Hong Kong permanent resident status, Ng Ka Ling, was adjudicated by The Court of Final Appeal to unquestionably have the right of abode in Hong Kong stipulated in Article 24(2) of the Basic Law in January 1999 (Buddle, 2009). The Court of Final Appeal’s adjudication worried HKSAR Government that immense pressure was being exerted upon the social and educational services in Hong Kong due to the influx of an estimate of 1.67 million of migrants within ten years. Hence, it was the first time for the Chief Executive, Tung Kin-Hwa, to seek for the reinterpretation of the Basic Law by the National People’s Congress Standing Committee. The reinterpretation of the Basic Law reasserted that children born before either of their parents became a permanent resident did not qualify for the right of abode under Article 24(2) (Buddle, 2009). Only the children born to Hong Kong parents can be granted the right of abode under stringent examination.

Marked changes were not revealed until another child, Chong Fung Yuen, born to Mainland parents, who visited relatives with two-way permits in Hong Kong in 1997. Chong stayed with his grandfather in Hong Kong after his parents’ departure. Chong’s grandfather was subsequently notified of the reinterpretation of the Basic Law that Chong was ineligible to be granted the right of abode. Chong’s grandfather was not satisfied and made an appeal to the Court of Final Appeal. The Court of Final Appeal adjudicated Chong’s grandfather to win the case in 2001, implying that the children born to Mainland parents in Hong Kong thereafter were granted the right of abode in Hong Kong (Steering Committee on Population Policy of the Hong Kong Special Administrative Region, 2012). Contrary to the first attempt, HKSAR Government did not seek the National People’s Congress Standing Committee’s reinterpretation of Basic Law.

As a rational response to the Court of Final Appeal’s adjudication, a concomitant increase in the number of Type II babies (babies born in Hong Kong to Mainland women whose fathers were not Hong Kong permanent residents) was the outcome of push-pull factors originating from the vast differences in educational and medical system between the Mainland and Hong Kong, exemplified by 88 percent of Type II parents moving to Hong Kong because of the favorable educational system in Hong Kong in an examination of six successive rounds of surveys conducted by the Census and Statistics Department between 2007 and 2012 (Census and Statistics Department, 2012b). It is not surprising to find that the number of Type II babies increased from 620 in 2000 to 75,736 in 2011 and Type I babies (babies born in Hong Kong to Mainland women whose spouses are Hong Kong residents) oscillated 6,000-8,000 between 2001 and 2011 (Census and Statistics Department, 2013).

Although both Type I and Type II babies could allay aging concerns (Lam and Tu, 2016), Hong Kong citizens upbraided and remonstrated against the intense competition of the medical service and social welfare provoked by the Type II babies. The measures implemented by the Hospital Authority in 2007 included charging non-local pregnant women with booking confirmation certificates in public hospitals HK$39,000 for the deliveries, whereas their counterparts without any antenatal check-ups would be charged HK$48,000 for deliveries at the accident and emergency departments (Steering Committee on Population Policy of the Hong Kong Special Administrative Region, 2012). The Hospital
Authority’s policy was supplemented with the denial of entry to Mainland women over 28 weeks of gestation at boundary control points by the Immigration Department of Hong Kong (Yam, 2011). The Hospital Authority intermittently disallowed non-local pregnant women to book obstetric services in all public hospitals in 2009 and 2011, respectively (Wen Wei Po, 2012). The restrictions, however, were subsequently waived. A quota of 35,000 (3,400 quotas in public hospitals and 31,000 quotas in private hospitals) was then set in 2012 to restrict the number of non-local pregnant women giving birth in Hong Kong (Steering Committee on Population Policy of the Hong Kong Special Administrative Region, 2012).

The policies became strict when a zero delivery quota, referring to the suspension of the booking of obstetric services from all public and private hospitals for the mothers of Type II babies, was finally announced by the Chief Executive-elect, CY Leung, in April 2012 (Census and Statistics Department, 2012c).

Since the public controversy about Type II children intensified and threatened a reduction of the labor force in the coming years of 2018, the Steering Committee on Population Policy (the revamped Task Force on Population Policy) launched a public engagement exercise on population policy revolving around unleashing a potential labor force, enhancing the quality of the labor force, recruiting talents from abroad, increasing fertility rates, and accommodating the aging population between October 2013 and February 2014 (Secretariat of the Steering Committee on Population Policy and Chief Secretary for Administration’s Office, 2013).

Although the Steering Committee on Population Policy issued successive proposals regarding population policy, the legislative councilors criticized that Hong Kong still lacked a holistic, long-term, and forward-looking population policy among different panels and committees (Research Office of the Legislative Council Secretariat, 2013). The demographic dilemma in Hong Kong requires a comprehensive population policy addressing fertility, migration, and aging. We present an evaluation of the population policy in a series of papers (Lam and Tu, 2015, 2016) addressing the core themes of fertility, migration, and aging. An evaluation of the fertility contributed by Mainland women comprises the preliminary part of the series and is followed by an assessment of family-friendly measures for enhancing fertility in the current paper.

Rationale of designing family-friendly policies
Before industrialization, there was less division of labor between married couples. Housework and child rearing was performed by wives, and the role of husbands was limited to that of a provider. In preindustrial societies, non-mechanized agricultural tasks and piecework can be combined with child supervision without considerable risk to children or noticeable shortfall in economic productivity (Brewster and Rindfuss, 2000). However, with increases in industrialization, engaging in child care while conducting economically productive work becomes increasingly untenable for wives. Today, work locations are typically distant from homes, and work schedules do not provide the flexibility required for families with children.

Therefore, women and men increasingly choose not to have children. This has been described as a revolution in social affairs and marks a departure from traditional family values, according to which producing offspring was integral to the meaning of prosperity and happiness for a typical person and humans in general.

In recent decades, sociologists, demographers, and economists have studied the relationship between fertility, motherhood, and employment of women because increasingly more women have joined the labor force; however, whether ultra-low fertility is a long-term phenomenon remains unclear. Despite this vagueness, numerous industrialized and developing countries have formulated policies that are based on the inverse relationship between fertility and the employment of women, two central aspects in the lives of women.
As suggested by Brewster and Rindfuss (2000), family-relevant policies include both explicit and implicit policies and are redistributive from pronatalist to universal policies, accounting for financial means, children’s ages, and family sizes (Hantrais, 1997). Thus, family policies have comprehensive goals, such as guaranteeing that household income differences do not constitute markedly inequitable living standards and promoting and supporting large family sizes. Regardless of goals and purposes, the intention of any country in developing family policies is to regulate social and economic relations within families as well as between families and other social institutions (Wennemo, 1993).

All advanced industrial countries ensure some types of provision for working families; however, orientations toward families and family policies differ markedly as Brewster and Rindfuss (2000) indicated. They described these differences by applying Chesnais’s (1996) classification of “nations of families” and “nations of individuals,” which provides a summary of national orientations toward the resolution of conflict between work and family. Chesnais (1996) observed two forms of policies in nations of families: they are strongly supportive of families comprising a breadwinner (father), homemaker (mother), and their dependent children; or they do little that could challenge or interfere with the rights and choices of such families. The policies in nations of individuals tend to be both accommodating toward women’s rights and concerned with children’s living standards. Moreover, such policies often recognize a diversity of family forms beyond the breadwinner-homemaker model. Nations of families tend to exhibit conservative gender-role attitudes compared with nations of individuals, which exhibit egalitarian gender-role attitudes. Nations of families are most prevalent in Asia, particularly East Asia. However, Hong Kong seems to be developing a policy integrating major aspects of both models.

**Family-friendly measures for enhancing fertility**

The HKSAR Government introduced a set of family support policies consisting of financial support and allowances (tax allowance) and family-friendly measures that reduce the opportunity cost of childbearing (maternity leave, parental leave, flexible working hours, health care facilities, workplaces that enable breastfeeding, and subsidized child care services) (Lappegard, 2010).

Regarding direct subsidies and allowances, the Financial Secretary announced in his 2016/2017 Financial Address that the tax allowance remains unchanged as HK$100,000 in 2016/2017 for parity one to parity nine (Financial Services and the Treasury Bureau, 2016).

In addition to direct allowances, all female employees who work for a continual period of 40 weeks and indicate their intention of taking maternity leave are eligible for a ten-week maternity leave and four-fifths of the average daily wages earned by an employee in the 12-month period before the first day of maternity leave (Department of Justice, 2007).

In addition, since April 1, 2012, all full-time male government employees (civil servants, non-civil service contract staff, and political appointees) who have no less than 40 weeks of continual service immediately before the expected or actual date of childbirth are eligible for five days of fully paid paternity leave (HKSAR Government, 2012). The government encouraged corporations to implement similar measures by proposing an amendment to the Employment Ordinance in 2014. The amendment provides for three days of parental leave as a statutory benefit for working fathers under Cap. 57 of the Employment Ordinance (HKSAR Government, 2014). The amendment provides that all fathers who work under a continuous contract and indicate their intention of taking parental leave in advance are eligible for either three consecutive or separate days of parental leave with four-fifths of the average daily wage. The parental leave can be taken within four weeks before the expected date of childbirth and ten weeks after the date of actual childbirth. The paid parental leave can be applied to fathers and expecting fathers who have worked for at least 40 weeks and can prove such a work duration. The amendment was published in the *Hong Kong
Government Gazette on February 28, 2014, and the bill was passed to the Legislative Council for examination in March 2014. In response to an amendment of the bill by two legislative councilors, the Labor Department stressed the necessity of repassing the bill to the Labor Advisory Board for consultation. The Employment (Amendment) Ordinance 2014 on statutory paternity leave was implemented on February 27, 2015.

One of the immediate benefits of parental leave is that breastfeeding is encouraged. Although breastfeeding is not considered necessary for raising a child, the World Health Organization encourages mothers to breastfeed infants within the first six months and use breastfeeding to supplement solid food until the age of two years, because breast milk is conducive to both the physical and mental development of infants, is easily digested, and protects them from numerous diseases (Baby Friendly Hospital Initiative Hong Kong Association (BFHIHKA), 2016).

In 1991, the global Baby-Friendly Hospital Initiative was launched by the World Health Organization and the United Nations Children’s Fund (UNICEF). In 1994, Hong Kong established the BFHIHKA under the auspices of the Hong Kong Committee for UNICEF (BFHIHKA, 2016). The BFHIHKA implemented the Baby-Friendly Hospital Initiative as an accreditation scheme to evaluate the eligibility of hospitals to register as baby-friendly hospitals that promote and support breastfeeding. Hospitals that apply are evaluated stepwise (registration of intent, certificate of commitment, award of Level 1 participation, award of Level 2 participation, and award for being a baby-friendly hospital) within five years (BFHIHKA, 2016). The Queen Elizabeth Hospital is awarded as the first baby-friendly hospital in 2016, whereas the Queen Mary Hospital achieved Level 3, obtaining the award of Level 1 participation in 2016 (BFHIHKA, 2016).

In the two aforementioned public hospitals, nurses teach mothers how to breastfeed infants. The Baby-Friendly Hospital Initiative led to an increased rate of breastfeeding after discharge, from 19 percent in 1992 to 86.3 percent in 2014 (Baby Friendly Hospital Initiative Hong Kong Association (BFHIHKA), 2015). The increased breastfeeding rate has been widely regarded as a success of the initiative. Sustaining the exclusive breastfeeding rate (mothers who use no infant formula milk or complementary food) at least until the age of two years, as recommended by the World Health Organization, remains challenging, especially for working mothers. The exclusive breastfeeding rate for infants between four and six months was only 27.4 percent in 2014 (BFHIHKA, 2015). To increase the prevalence of breastfeeding, the Department of Health implemented a breastfeeding-friendly policy to support all Department of Health employees and enable breastfeeding in spite of employment. The breastfeeding-friendly policies include the provision of lactation breaks (two 30 min breaks during an 8 h shift), private space (a comfortable chair and an electric outlet), and refrigerating facilities for storing breast milk (Department of Health, 2014).

In contrast to the policy “Supporting DH Employees to Combine Breastfeeding and Work,” published in the Department of Health Standing Circular No. 9/2012, private companies implement breastfeeding-friendly policies independently, because no law has been passed to implement breastfeeding-friendly policies. The Department of Health only drafted a guideline entitled “An employee’s guide to combining breastfeeding with work.” Private companies can use this guide to become mother and baby-friendly workplaces.

An additional crucial measure for reducing the costs of childbearing is providing subsidized child care services. Child care services are primarily provided by non-profit organizations and private operators with subvention of the government. All child care services are subject to the regulation of the Child Care Services Ordinance and Regulations enforced by the Child Care Centers Advisory Inspectorate of the Social Welfare Department (2016). Parents can choose from any one of the four child care services or a combination, including child-care centers, kindergarten-cum-child-care centers, mutual-help child-care centers, and neighborhood support child care projects.
Child-care centers are specifically designed to provide care to children younger than three years from Mondays to Fridays (8 a.m.-6 p.m.) and Saturdays (8 a.m.-1 p.m.). Parents can pay for either occasional child care service (full day, HK$64; half day, HK$32; 2 h session, HK$16 in certain child-care centers) or extended hours service (longer care service from Mondays to Fridays, 6 p.m.-8 p.m., and Saturdays, 1 p.m.-3 p.m., HK$13/h) (Social Welfare Department, 2014a). Financially disadvantaged families can apply for a full grant or partial fee waiver under the Kindergarten and Child Care Center Fee Remission Scheme (Social Welfare Department, 2016).

Kindergarten-cum-child-care centers are specifically designed to provide care and educational services for children younger than six years from Mondays to Fridays (8 a.m.-6 p.m.) and Saturdays (8 a.m.-1 p.m.). According to the Kindergarten and Child Care Center Fee Remission Scheme, financially disadvantaged families can receive subsidies (Social Welfare Department, 2016).

In contrast to the routine operating hours of child care and kindergarten-cum-child-care centers, mutual-help child-care centers, which are operated by non-profit organizations, women’s associations, and church groups and staffed by volunteers, neighbors, and parents, provide flexible care services to children younger than three years with a maximal capacity of 14 children during evenings, weekends, and on public holidays (Social Welfare Department, 2016). The fees are determined by the operators. Low-income families can apply for full- and half-fee waivers.

Similarly, neighborhood support child care projects provide flexible care services in 18 districts. Such projects comprise two components: home-based child care service (provide care services to children younger than six years at the child carers’ residence or a suitable place approved by the operator between 7 a.m. and 11 p.m.) and center-based care groups (provide care services to children aged three to six years at the service center; service hours cover late evenings, weekends, and public holidays) (Social Welfare Department, 2016). The operators charge fees with the approval of the Social Welfare Department. Financially disadvantaged families can apply for full- and half-fee waivers.

Evaluation of family-friendly measures
The effectiveness of the aforementioned family-friendly measures depends on the goodness of fit between the identified causes of low fertility and the corresponding measures. The measures implemented by the HKSAR Government seem to be increasingly effective but require further development.

The HKSAR is similar to other capitalist societies, in which incongruence among gender equity in individual-oriented institutions, gender equity in family-oriented institutions (McDonald, 2000), and role incompatibility (Stycos and Weller, 1967) have been argued to be causes of ultra-low fertility. Family-friendly measures should be implemented to reduce the role incompatibility between motherhood and female employment. The HKSAR Government has introduced family-work reconciliation policies such as subsidized child care services, health care and workplace facilities that enable breastfeeding, and ten weeks of maternal leave and five days of fully paid paternal leave among civil servants. In addition, the HKSAR is striving to achieve a balance between family-oriented and individual-oriented institutions, because the effectiveness of family-friendly measures depends on a normative context or institutional influence (Brewster and Rindfuss, 2000). One of the normative contexts relates to the social norms and gender ideologies about child care, female employment, and the division of labor in the home (Brewster and Rindfuss, 2000). The importance of gender ideologies lies in the interconnectedness among gender ideologies, female employment, motherhood, other policies promoting gender equity, family-friendly measures, and the receptivity of family-friendly measures (Brewster and Rindfuss, 2000; Brinton and Lee, 2012; Chesnais, 1996). For example, Asians may experience
difficulties in surrendering the traditional mother role to the state and other parties because of conservative and non-egalitarian gender roles. Asian mothers would rather rely on the family network and neighbors for child care. The HKSAR must address the fact that the female labor force participation rate (LFPR) is high (female LFPR in 2013: 54.5 percent; male LFPR in 2013: 69.1 percent) (Census and Statistics Department, 2014) and female educational attainment is high (54 percent of women aged 25-34 and 35 percent of women aged 35-44 received post-secondary education in 2011) (Census and Statistics Department, 2012c), yet child rearing remains primarily conducted by women, with men barely offering assistance to child care and other household chores.

The complex role played by the normative context explains why child care services combine the caring for children in kindergarten-cum-child-care or child-care centers and mutual-help child-care centers or neighborhood support child care projects; the mutual help and neighborhood support represent the traditional practice of relying on neighbors for child care.

All the aforementioned child care services fulfill the five major criteria suggested by Rindfuss et al. (2003): first, availability – child care services are provided by 25 child-care centers with the prescribed quota of averaging 40 children in each center; there are 499 kindergarten-cum-child-care centers across 18 districts, 23 mutual-help child-care centers with a maximal capacity of 14 children, and 18 neighborhood support child care projects with operating hours covering office hours, evenings, weekdays, weekends, and public holidays (Social Welfare Department, 2014a, b, c, d). Second, acceptability – parents can select between highly acceptable and credible neighbors as caretakers in the mutual-help child-care centers and neighborhood support child care projects and child-care centers. Third, accessibility – all child care services are located in the vicinity of parents’ residence. Fourth, cost – parents can pay for the child care services with subsidies by the government and use education vouchers or apply for the Kindergarten and Child Care Center Fee Remission Scheme. Fifth, quality – all staff members are required to become registered child care workers or supervisors and complete approved training courses to be recognized by the director of Social Welfare. In addition, child care services are strictly regulated by Chapter 243 of the Child Care Services Ordinance (Education Bureau, 2013).

The high usage rate of subsidized child-care centers (100 percent), occasional child care service (71 percent), and extended hours services (81 percent) in 2012/2013 confirmed the high receptivity among parents in Hong Kong (Social Welfare Department, 2013). However, there may be too few subsidized child-care centers. Despite the high effort invested by the HKSAR Government to increase the extended hours of service to a 5,000 quota (Financial Services and the Treasury Bureau, 2015), whether a sole increase in extended hours services without a concomitant increase in the number of vacancies in child-care centers can decrease the exceedingly long waiting times for subsidized child-care centers remains unclear. The long waiting time is evidenced by data provided by the Hong Kong Society for the Protection of Children, according to which 1,500 parents wait for 300 subsidized places in child-care centers (Hong Kong Daily News, 2015).

Similarly, the development of other family-work reconciliation policies, especially parental leave, remains heavily constrained by conservative gender ideologies and practical policy deliberations. The reluctance of the HKSAR Government in introducing parental leave is a response to the opposition from the business sector and traditional gender ideologies. The HKSAR Government initially exhibited determination in granting parental leave in 2012, but the entitlement to five days of fully paid parental leave is limited to civil servants. The extent of parental leave is severely compromised by the suspension of amending the Employment Ordinance in the Legislative Council. The controversy regarding parental leave in terms of whether working fathers have parental leave, when parental leave is introduced, the duration of leave, and the pay during parental leave all pose barriers in addressing the family-work incompatibility. Although some of the disputes are resolved and
parental leave finally extends to all male employees of private corporations in 2015, it provokes another question whether three days of parental leave is sufficient.

Similarly, the policy allowing mothers to breastfeed during office hours is questionable. The breastfeeding-friendly policy was implemented only by the Department of Health, whereas companies in general independently take initiatives to allow women to breastfeed during work. Even if companies allow female employees to breastfeed, their eligibility as mother-baby-friendly workplaces is severely compromised by the limited provision of lactation breaks, comfortable chairs, electric outlets, and refrigerating facilities for storing breast milk. This explains why the breastfeeding rate after discharge is approximately 86 percent, but the exclusive breastfeeding rate for infants between four and six months decreased sharply to 27.4 percent (BFHIHK, 2015). The statistics suggest that companies lack incentives to implement breastfeeding-friendly policies. The government could provide incentives to companies that allow females employees to breastfeed at work. For instance, it could grant tax breaks and provide direct cash subsidies to companies that install improved breastfeeding facilities.

Conclusion
The HKSAR is a unique combination of a cosmopolitan and traditional Chinese society because of colonization by Britain and the subsequent reintegration with the People’s Republic of China in 1997. The influence of western ideas and traditional values about female employment, motherhood, and family have caused role incompatibility. The HKSAR has implemented family-friendly measures in spite of being partly a nation of individuals and partly a nation of families. Although the development of child care services has been favorable, the extent of parental leave and the provision of workplace facilitates to enable breastfeeding remain unsatisfactory in absolute terms and inferior to those of Asian countries (e.g. Singapore ensures 16 weeks of fully paid maternal leave and one week of fully paid (government-paid) paternity leave; Japan provides 14 weeks of maternal leave at 60 percent of the salary and one year of child care leave by each parent at 50 percent of the salary; the child care leave can be extended to 14 months if parents take turns in taking leave; South Korea provides 90 days of maternal leave with the first 60 days at full salary and five days of paternal leave with the first three days at full salary) (Ministry of Manpower, 2014; OECD, 2013). According to the prevailing development of family-friendly policies, the prospect of increasing fertility in the HKSAR remains uncertain. Yip et al. (2015) expressed apprehension that TFR was constrained by a tempo distortion as an outcome of a delay in marriage despite a slight rebound of TFR to 1.2 from 2011 onwards. Addressing fertility is further complicated by the interplay of role incompatibility, an increasing prevalence of single older women (the number of never-married women increased by 62.9 percent between 1986 and 2013) (Census and Statistics Department, 2014), a shift of utility function from children toward other consumer goods (Inglehart, 1982), and the intention by families to achieve generational social capillarity by investing in a small number of children, thereby enabling them to achieve an improved socioeconomic status (Ariès, 1980). In viewing of the difficulties of enhancing fertility, HKSAR Government should be proactive in devising a long-term and holistic population policy such as attracting talents to stay and work in Hong Kong.

Notes
1. When couples have just enough children to replace themselves as adults in a population, fertility is said to be at “replacement level.” Replacement level is higher than two children because there are roughly 5 percent more male children than female children born and because not all females survive through their childbearing years. In the more developed countries where infant and child mortality are low, 2.1 children per couple constitutes replacement level.
2. Kohler et al. (2002) explained that the choice of the lowest-low fertility as below 1.3 children is arbitrary. The major reason of this choice is that none of the forerunners of reaching below-replacement fertility in the Northern and Western European countries have reached TFR below 1.3 for the extended long period. Therefore, the choice of lowest-low fertility can be used for differentiating the lowest-low fertility from below-replacement fertility.

References


Fertility in Hong Kong


Further reading


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Acculturation and psychological well-being of immigrant brides in Taiwan

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Abstract
Purpose – Since the 1990s, an imbalanced marriage market has ushered in a great number of female immigrants, mainly from China and certain ASEAN countries, into Taiwan. These immigrant brides lose their original social networks and face difficulties acculturating, which in the long run may take a toll on their psychological well-being. The purpose of this paper is to identify what the factors are and how they are associated with the symptoms of depression and anxiety among immigrant brides.

Design/methodology/approach – Due to the difficulty of identifying immigrant brides within the general population, the research relies on a convenience sample of 366 immigrant brides in eight cities or counties in Taiwan. The research team provided questionnaires in different languages including Traditional Chinese, Simplified Chinese, English, Vietnamese, Thai, and Indonesian. Surveyed immigrant brides filled in questionnaires while participating in activities for Immigrant Day.

Findings – Hierarchical regression analyses show that perceived discrimination and sociocultural barriers are the two greatest factors causing depression and anxiety among immigrant brides. However, the effect of social support is not as clear as expected. Emotional social support from “the same ethnic group” is significant in reducing the symptoms of psychological depression of immigrant brides, but it cannot explain the variation in anxiety among immigrant brides.

Originality/value – Although the psychological well-being of immigrant brides in Taiwan is an important issue, little scholarly research has been published on this increasing segment of the population. The research can improve our understanding of the acculturation of immigrant brides in Taiwan. Meanwhile, the findings in the Taiwan-based research may provide further helpful knowledge for South Korea and China, both of which generally share a similar culture with Taiwan and are also facing the issues of marriage market imbalance and the increase of immigrant brides, in developing prevention and intervention strategies and/or programs to enhance the psychological well-being of immigrant brides.

Keywords Acculturation, Taiwan, Discrimination, Psychological well-being, Immigrant brides, Sociocultural barriers

Paper type Research paper

1. Introduction
A rocky marriage market, offset by a rising local economy, has made present day Taiwan a new home for more than a half million marriage immigrants[1] Females account for 92 percent of the marriage immigrants, who are primarily from Mainland China, and five ASEAN countries including Vietnam, Indonesia, Thailand, Cambodia, and the Philippines. Breaking from the social networks and leaving behind the resources found in their motherlands, immigrant brides, with limited social supports and/or language difficulty in the host societies, are disadvantaged and may experience acculturative stress, which further undermines their psychological well-being.

Medical research on Mexican migrants has shown that “migrants had a significantly higher risk for first onset of any depressive or anxiety disorder than did nonmigrant family members of migrants” (Breslau et al., 2011, p. 428). Depression can have a detrimental effect on physical health and lifestyle behaviors (Bodhuys et al., 2004). For immigrant brides in
Taiwan, as primary care-givers to their children, stress threatens not only their own livelihoods, but also the development of future Taiwanese population[2].

Nowadays, the plight of immigrant brides is a major concern in Taiwan, as well as in other East Asian countries (e.g. South Korea) which are experiencing a similar immigration trend. Yet, little scholarly research has been published on this increasing segment of the population. Therefore, the aim of the present research investigates the factors that affect the psychological well-being of immigrant brides during their acculturation in Taiwanese society. The factors can be internal and external, as well as pre-migrated and post-migrated.

2. Theoretical backgrounds and research hypotheses
Leaving their home countries, immigrants start new lives and an acculturative process. Acculturation is a “culture learning process experienced by individuals who are exposed to a new culture or ethnic group” (Organista et al., 2010, p. 102). It was defined by Redfield et al. (1936, p. 149) as “those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original culture patterns of either or both groups.”

During acculturation, individuals including both immigrants and the natives (or called dominant and non-dominant groups, respectively) may learn and adopt new norms, values, attitudes, and behaviors from each other. For immigrants, Gordon (1964) viewed acculturation as a process for adopting the cultural norms and behavioral patterns of the natives or the majority group (often called the “core culture”). Organista et al. (2010, p. 105) define acculturation as “dynamic because it is a continuous and fluctuating process and it is multidimensional because it transpires across numerous indices of psychosocial functioning and can result in multiple adaptation outcomes.”

Acculturation is an extremely complicated process. Immigrants may experience acculturative stress arising from the acculturative process (Williams and Berry, 1991). The results of acculturation can end in positive or negative adaptations, which vary among individuals. According to Berry (2006, p. 289), “[n]ot all […] individuals undergo acculturation in the same way; there are large variations in how people seek to engage the process.”

2.1 Factors associated with the psychological well-being of immigrants
The outcomes of acculturation are varied; acculturative stress can ravage mental and physical health (Berry et al., 1987). Acculturative stress often results “in a particular set of stress behaviors that includes anxiety, depression, feelings of marginality, alienation, heightened psychosomatic symptoms, and identity confusion” (Williams and Berry, 1991, p. 634). The present research examines the psychological well-being of immigrants, which is measured by the symptoms of anxiety and depression. Although factors in the outcomes can be multidimensional, the study focuses on the acculturative experiences of immigrant brides in Taiwan, which can include the length of stay, modes of acculturation, social network support, and perceived discrimination. The additional factor includes the self-esteem and sociocultural barriers of acculturating individuals.

2.1.1 Length of stay. Williams and Berry (1991) indicate the scholarly attempts to link levels of acculturative stress to a particular phase of acculturation. Many studies have shown that length of stay in the host culture influences adaptation (e.g. Ward et al., 1998). Miglietta and Tartaglia (2009) and Massey et al. (1987) suggest that a long-lasting stay in a host county makes it easier for immigrants to become familiar with the social context in the destinations. Miglietta and Tartaglia (2009, p. 48) further propose that being familiar with the new social context enhances immigrants’ sociocultural competence that “represents a fundamental tool for immigrants who need to participate in the host culture to fully gather the meaning of social events.”
According to Berry (2006, p. 294), psychological problems, such as depression and anxiety, often appear soon after intercultural contact, followed by a general decrease over time. Kim (1988) suggests that individuals entering a new culture could attain a higher level of adaptation by being exposed to the host country and through greater interaction with members of the new culture. However, sociocultural adaptation develops in a different pattern; it “typically has a linear improvement with time” (Berry, 2006, p. 294). Generally speaking, this implies that in the long run, the length of residence in host societies is positively associated with sociocultural adaptation and negatively associated with psychological problems of acculturation. The longer immigrants reside in a host society, the better their psychological and sociocultural adaptations are, and the fewer symptoms of anxiety and depression appear.

2.1.2 Modes of acculturation (acculturation strategies). In the process of acculturation, immigrants develop certain attitudes and behaviors to face the intercultural encounters. These particular attitudes and behaviors are the components of acculturation modes (or acculturation strategies). Therefore, the chosen modes of acculturation reflect the acculturative attitudes and orientations that immigrants assume toward their own culture and the culture in host societies. The four acculturation modes are integration, assimilation, separation, and marginalization (Berry, 1970, 1974, 1980, 2006). These modes are associated with the immigrant’s positive or negative attitudes toward maintaining a cultural heritage and identity, as well as the preferred level and type of interaction with the majority or the dominant groups (Organista et al., 2010, p. 110).

When acculturating individuals are interested in both maintaining their original culture and accepting the culture in host societies, the integration mode is adopted. For those individuals not wishing to keep their cultural identity, but wishing to learn and accept the culture of the majority in the destination, the assimilation mode is chosen. If acculturating immigrants place a value on holding on to their original culture, while wishing to avoid interaction with the culture in host societies, they choose a separation mode. In contrast, marginalization mode defines the attitudes and behaviors of immigrants who have no interests in either maintaining their original culture or developing relations with the majority in the host society to learn new cultural attitudes and behaviors.

The empirical findings of J.W. Berry and colleagues (see Berry, 1997; Berry and Sam, 1997) reveal the association of acculturation stress with acculturation modes. The pursuit of integration is least stressful, while marginalization is the most stressful (Berry, 2006, p. 294). Assimilation and separation modes are in between the two previous extremes. This pattern of findings particularly applies to the research on mental health (Berry and Kim, 1988; Schmitz, 1992). Berry (1997, 2005) explains that a supportive affiliation with both cultures in the origin and the destination is a successful adaptation.

However, immigrants cannot always freely choose a strategy. Integration can only when the majority in host societies are open to immigrants and appreciate the inclusion of minority cultures to prompt cultural diversity (Berry, 1991; Organista et al., 2010).

2.1.3 Social support and discrimination. Social supports and community atmosphere can influence acculturation outcomes (Farrell et al., 2004; Fumhan and Sheikh, 1993; Jayasuriya et al., 1992; Vega and Rumbaut, 1991). Social support is often reported as the most influential protection factor in acculturative stress among immigrants. Social support refers to the presence of social and cultural institutions that support acculturating individuals. Hovey and Magaña (2000) argue that the perceived quality of social support is a more accurate predictor of psychological distress than is the quantity of social support. Meanwhile, there is a negative relationship between social support and psychological well-being; ineffective social support is strongly associated with heightened levels of anxiety and depression (Hovey and Magaña, 2000). Social support of high quality may help immigrants cope with anxiety and depression (Lin and Huang, 2007).
Community atmosphere reflects the general attitudes toward immigrants; meanwhile it shows the societal acceptance of immigrants. A generally open attitude creates a friendly environment that accepts the newcomers. Within an unfriendly environment, immigrants are more likely to experience discrimination. Perceived discrimination is a risk factor, which can harm the psychological well-being of acculturating individuals. The association between perceptions of discrimination and poor psychological well-being has been confirmed in empirical research works, which reveal a negative relationship between perceived discrimination and well-being (see Paradies, 2006; Williams et al., 2003). As an explanation for negative outcomes, perceived discrimination implies a rejection or exclusion of immigrants and thus can undermine psychological well-being by threatening the fulfillment of needs for inclusion and acceptance (Baumeister and Leary, 1995; Wirth and Williams, 2009). Verkuyten (1998) points out that discrimination can create a sense of powerlessness. Individuals being discriminated perceive a lack of control over important life outcomes. Acculturating individuals who perceived being discriminated against would, in general, be more likely to have negative outcomes on their psychological well-being. Additionally, perceived discrimination is negatively related to psychological well-being for both women and men, across ethnicities, as well as to depressive symptoms (Pascoe and Smart Richman, 2009).

2.1.4 Self-esteem and sociocultural barriers. Self-esteem is a personal overall evaluation of the self (Rosenberg, 1965). Sam (2000) points out that self-esteem has not been extensively examined in acculturation studies. However, self-esteem is associated with the outcomes of acculturation. For example, Valentine (2001) reports that self-esteem is positively related to acculturation. It implies that those who report a higher score of self-esteem may be less likely to report symptoms of anxiety and depression.

Further, self-esteem reportedly has a moderating effect. Hovey and Magaña (2000, p. 128) and Kim et al. (2014) suggest that self-esteem may buffer stress during the acculturative process. Self-esteem moderates the relationship between acculturation stress and psychological well-being (Kim et al., 2014). Low self-esteem can place acculturating individuals or immigrants in risky situations in which acculturative stress may trigger their anxiety and/or depression.

Additionally, sociocultural adaptation of immigrants can affect their psychological adaptation and psychological well-being. While acculturation stress occurs in the process of acculturation, long-term adaptation may be achieved. Adaptation can be multifaceted. Particularly, those relevant to the present research include psychological and sociocultural adaptations (see Searle and Ward, 1990; Ward, 1996; Ward and Kennedy, 1993a). Psychological adaptation of immigrants is strongly associated with their individual psychological and physical well-being (Schmitz, 1992). Sociocultural adaptation refers to how well an acculturating individual is able to manage daily life in the new cultural context. Ng et al. (2013) and Kosic et al. (2006) find that the modes of acculturation are directly associated with sociocultural adaptation; “more use of integration and less use of marginalization are associated with better sociocultural adaptation” (Ng et al., 2013, p. 599). The most important finding in the research of Ng et al. (2013) is that sociocultural adaptation mediates the effects of the modes of acculturation and social support on psychological adaptation. Therefore, we suggest that sociocultural adaption of immigrants can directly influence their psychological well-being. Those who experience poor sociocultural adaptation have more sociocultural barriers, which can cause anxiety and depression.

2.2 Research hypotheses
The present research examines the psychological factors of immigrant brides in Taiwan. Particularly, the predicting factors include the length of stay, modes of acculturation,
social support, perceived discrimination, self-esteem, and sociocultural adaptation. The psychological well-being only concerns psychological depression and anxiety. We hypothesize that the length of time residing in Taiwan and social support are protective factors. Specifically, our research hypotheses are the following:

H1. A longer period residing in Taiwan would reduce the emergence of depression and anxiety symptoms.

H2. Those who receive more social support are less likely to experience depression and anxiety.

H3. Acculturation strategies may lead to different acculturation outcomes. Integration and assimilation are hypothesized to be negatively associated with depression and anxiety, while separation and marginalization may be positively associated with mental health.

H4. Living in a welcoming community, an immigrant is less likely to be discriminated against. Therefore, those who experience less discrimination would be less likely to experience depression and anxiety symptoms.

H5. Self-esteem is negatively associated with anxiety and depression.

H6. Those who report to have more sociocultural barriers are more likely to have anxiety and depression.

3. Methods and data

Due to the difficulty of identifying immigrant brides among the general population, the research relies on a convenience sample of 366 immigrant brides in eight cities or counties in Taiwan, which are listed in Table I[3]. The research team provided questionnaires in different languages including Traditional Chinese, Simplified Chinese, English, Vietnamese, Thai, and Indonesian. Surveyed immigrant brides filled in questionnaires while participating in activities for Immigrant Day[4].

Besides items that collect background information about the participants, the questionnaire consists of several social-psychological scales. It is worthy to note that the questionnaire of the present research is inspired by the tool of J. Berry’s Mutual Intercultural Relations in Plural Societies (MIRIPS) Project[5]. For the present study, part of the data is analyzed, which include respondents’ social demographic information, immigration experiences in Taiwan, acculturation strategies, self-esteem, sociocultural barriers, and self-reported symptoms of anxiety and depression.

The basic demographic information is reported in the next section that illustrates the characteristics of the sample, which include respondents’ origins, age, education, number of children, working status in Taiwan, and family income. The origin of immigrant brides serves as a control variable for data analysis. The immigration experiences in the present research refer to respondents’ length of staying in Taiwan, quality of social network, and perceptions of being immigrants in Taiwan. The quality of a social network is measured as having emotional social support from diverse ethnic groups. Respondents most frequently receive emotional social support from people within the same ethnic group. “Perception of being immigrants” measures the extents of being discriminated against, which is a composite variable formed from five Likert-type indicators with an internal consistency (Cronbach’s $\alpha$) of 0.88. The reported mean value is 2.66 (on a five-point scale; SD = 0.99) (see Table AI).

Measurements of modes of acculturation are modified from Berry’s MIRIPS tool. Acculturation modes include four dimensions: integration, assimilation, separation, and marginalization (see Berry, 1970, 1974, 1980, 2006). Each of the four dimensions is derived
from four indicators with an acceptable internal consistency ranging from 0.71 to 0.81 (see Table AI). A serial of paired sample t-tests reveal that immigrant brides are most likely to take integrative acculturation strategy (mean = 4.00; SD = 0.84), and followed by assimilation (mean = 2.82; SD = 0.92), separation (mean = 2.72; SD = 0.93), and marginalization (mean = 2.40; SD = 1.00) strategies.

<table>
<thead>
<tr>
<th>Variables</th>
<th>%</th>
<th>Variables</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td><strong>Nationality</strong></td>
<td></td>
<td><strong>Age (mean = 35.27; SD = 9.29)</strong></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>34.5</td>
<td>20 or under</td>
<td>2.3</td>
</tr>
<tr>
<td>Vietnam</td>
<td>33.7</td>
<td>21-30</td>
<td>31.5</td>
</tr>
<tr>
<td>Thailand</td>
<td>4.8</td>
<td>31-40</td>
<td>41.8</td>
</tr>
<tr>
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<td>41-50</td>
<td>16.9</td>
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<tr>
<td>The Philippines</td>
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<td>51-60</td>
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</tr>
<tr>
<td>Cambodia</td>
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<td>61-70</td>
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<th>Number of children (mean = 1.46; SD = 0.91)</th>
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<tr>
<td>1</td>
<td>32.4</td>
</tr>
<tr>
<td>2</td>
<td>41.6</td>
</tr>
<tr>
<td>3 or more</td>
<td>9.8</td>
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<tr>
<th>Years of education (mean = 10.70 years; SD = 3.27)</th>
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<tr>
<td>1-6 years</td>
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</tr>
<tr>
<td>7-9 years</td>
<td>30.1</td>
</tr>
<tr>
<td>10-12 years</td>
<td>42.7</td>
</tr>
<tr>
<td>13-16 years</td>
<td>14.2</td>
</tr>
<tr>
<td>17 years or more</td>
<td>3.3</td>
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</table>

<table>
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<tr>
<th>Current residence</th>
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<tbody>
<tr>
<td>North Taiwan</td>
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</tr>
<tr>
<td>Taipei City</td>
<td>10.5</td>
</tr>
<tr>
<td>Xinbei City</td>
<td>9.4</td>
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<tr>
<td>Taoyuan County</td>
<td>21.2</td>
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<tr>
<td>Xinzhu City&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.6</td>
</tr>
<tr>
<td>Central Taiwan</td>
<td></td>
</tr>
<tr>
<td>Taichung City</td>
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<tr>
<td>Zhanghua County</td>
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<td>Nanhsu County&lt;sup&gt;a&lt;/sup&gt;</td>
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</tr>
<tr>
<td>South Taiwan</td>
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</tr>
<tr>
<td>Jiayi City&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.3</td>
</tr>
<tr>
<td>Tainan City</td>
<td>10.5</td>
</tr>
<tr>
<td>Kaohsiung City</td>
<td>14.6</td>
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<tr>
<td>Pingdong County</td>
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<td>Kaohsiung City</td>
<td></td>
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<tr>
<td>No income</td>
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<td>NT$1-20,000 (US$0-650)</td>
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</tr>
<tr>
<td>NT$20,001-30,000 (US$650-1,000)</td>
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<tr>
<td>Other</td>
<td>1.4</td>
</tr>
</tbody>
</table>

**Notes:** “These are not research sites. Respondents came from their resident cities and counties to participate in Immigrant Day

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**Table I.** Characteristics of the sample
Self-esteem is measured on a scale designed by Rosenberg, with ten indicator variables. In the present research, the Cronbach’s $\alpha$ for the ten items is 0.85. The dimension of sociocultural barriers is constituted of four three-point Likert-like items, which have a Cronbach’s $\alpha$ of 0.97. The mean of sociocultural barriers is 0.93 (SD = 0.86). Well-being of immigrant brides is measured as self-reported mental health, including how often symptoms of depression and anxiety are experienced. The values of internal consistency for the dimensions of depression and anxiety measures are 0.90 and 0.91, respectively. Due to the high Cronbach’s $\alpha$ values, researchers constructed the means to measure immigrants’ severity of depression (mean = 2.28 on a five-point scale) and anxiety (mean = 2.38 on a five-point scale).

3.1 Statistical analytical techniques
The researchers apply descriptive statistics to illustrate the characteristics of subjects. Additionally, hierarchical regression analysis is the main technique in examining the significance of psychological factors and their effects.

3.2 Characteristics of the sample
As shown in Table I, the sample consists of 366 immigrant brides who are primarily from China (34.5 percent) and Vietnam (33.7 percent). In addition, 16.6 percent of subjects were from Indonesia, and a few are from Thailand, the Philippines, and Cambodia. Since the survey was administered in the eight cities or counties, most respondent immigrant brides are residing in Taipei City, Xinbei City, Taoyuan County, Taizhong City, Zhanghua County, Tainan City, Kaohsiung City, and Pingdong County. Some live in other areas. These immigrant brides on average have stayed in Taiwan for 9.34 years. About one-third of respondents have lived in Taiwan for 10-15 years, while about one-half of immigrant brides have resided in Taiwan for less than ten years.

Most of the respondents are in their 30s with a mean age of 35.27 years old (SD = 9.29) and have two children with a mean of 1.46 children. In terms of education, most of the respondents have obtained what is equivalent to a high school education in the Taiwanese system, accounting for 42.7 percent of the sample. The proportion of the sample accounted for by those who received some education in junior high school is 30.1 percent. In total, the respondents on average have attended schools for 10.7 years. Additionally, 52.9 percent of respondents work in an informal economy or are not working. Among these respondents, more than 40 percent were housewives. Among the employed, 21.7 and 11.8 percent work in unskilled and skilled occupations. In terms of income, most families of immigrant brides made between US$650-$1,650 per month. The average monthly income was about US$1,580 with a standard deviation of US$805.

4. Research findings
“Depression” and “anxiety” are the indicators measuring not only the mental health conditions, but also the well-being of immigrant brides. To investigate the effects of acculturation factors and other predicting variables with controlling for the effects of socio-demographic factors, we introduce six multiple regression analyses. In Model 1, the predicting variables are only the socio-demographic information that includes nationality and length of residence in Taiwan as the independent variables. Model 2 includes three sources of emotional social support as the predicting factors. Expanding from Model 2, Model 3 includes immigrant brides’ modes of acculturation to predict their well-being or mental health conditions. Perception of being discrimination against, self-esteem, and sociocultural barriers are the additional explanatory factors in Models 4-6, respectively. With Model 6, we are able not only to examine the direct effect of sociocultural barriers on the psychological well-being of immigrant brides, but also to monitor the mediating effects of sociocultural barriers.
4.1 Socio-demographical factors
According to Model 1 in Tables II and III, respectively, immigrant brides from Vietnam compared to their counterparts from China report higher levels of depression and anxiety. However, the comparison of Model 1 provides inadequate evidence to illustrate the difference in well-being among immigrant brides according to their origins. In the analysis of “depression,” the Vietnam-China difference remains in Models 2-5, but the disparity disappears in Model 6. The significant Vietnam-China difference in “anxiety” appears in Models 1 and 2, but it no longer appears in the rest of models.
Massey et al. (1987) suggested that the length of time residing in a destination is positively associated with the social and economic adaption of immigrants. Staying longer in destinations allowed immigrants to better understand local culture, and be familiar with and access public facilities. However, the length of stay in Taiwan, for these immigrant brides, may not have directly affected their well-being, regarding symptoms of depression and anxiety. The first hypothesis \((H1)\) is not significant. Williams and Berry (1991, p. 635) explain:

Evidence to support such a simple relationship with length of acculturation is slight, probably because acculturative stress is also influenced by so many other factors. Although those in first contact and those who have achieved some stable adaptation tend to be minimally stressed, those in the intermediate phases may or may not exhibit stress, depending on the numerous other factors.

4.2 Emotional social support
Emotional social support is an important factor in positive adaptation among immigrant brides. In the research, three sources of emotional social support, including from the same ethnic immigrants, from Taiwanese, and from other immigrants are examined, respectively to illustrate their significance to the psychological well-being of immigrant brides. We hypothesize that the diverse sources may affect the symptoms of depression and anxiety differently. Among the three sources, the emotional social support from the same ethnic group is one of the most important protection factors. As shown in Table II, receiving emotional social support from people within the same ethnic group effectively reduces the symptoms of depression (see Models 2-5), although the significant effect disappears in Model 6. Its significant influence is adjusted by sociocultural barriers, which may play an intervening role between the emotional social support from the same ethnic group and symptoms of depression. However, the emotional social supports from the same ethnic group partially affect the immigrant brides’ symptoms of anxiety. A significant effect of the emotional social support from people within the same ethnic group on anxiety is only found in Model 2, but not in Models 3-6. In sum, the second hypothesis \((H2)\) that states the relationship between social supports and psychological well-being is partially supported.

4.3 Modes of acculturation
By J. Berry (1970, 1974, 1980, 2006), acculturation strategies of immigrants can be fourfold: integration, assimilation, separation, and marginalization. Both integration and assimilation can lead to positive adaptation, while separation and marginalization can cause negative outcomes of adaption. However, acculturation strategies may not play significant roles in immigrant brides’ depression and anxiety. Although the positive effect of marginalization on the symptom of depression is seen in Model 3 in Table II, it immediately disappears in the rest of the models. It means its significant effect is mediated by other predicting factors, such as perception of discrimination. In other words, “marginalization” indirectly affects the symptom of depression. In sum, \(H3\) that hypothesizes the effects of acculturation strategies on psychological well-being is not supported.
Table II. Regression analysis of the depression of immigrant brides

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationality (ref: Chinese)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vietnamese</td>
<td>$B$</td>
<td>$\beta$</td>
<td>$B$</td>
<td>$\beta$</td>
<td>$B$</td>
</tr>
<tr>
<td>0.41**</td>
<td>0.22</td>
<td>0.39**</td>
<td>0.22</td>
<td>0.27*</td>
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<tr>
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<td>0.10</td>
<td>0.21</td>
<td>0.12</td>
<td>0.21</td>
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</table>

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<tr>
<td>From same ethnic group</td>
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<td>0.07</td>
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<td>-0.08</td>
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<td>0.11</td>
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<td>Separation</td>
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<td>0.04</td>
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<tr>
<td>Marginalization</td>
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<td>0.27</td>
</tr>
<tr>
<td>Perception of being discriminated against</td>
<td>0.34***</td>
<td>0.39</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>-0.34***</td>
<td>-0.24</td>
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<td>Sociocultural barriers</td>
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<td>2.05***</td>
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<tr>
<td>$R^2$</td>
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Notes: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$
### Table III

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<tr>
<th></th>
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<td>$B$</td>
<td>$\beta$</td>
<td>$B$</td>
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<td>-0.12</td>
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<tr>
<td>From Taiwanese</td>
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<td>-0.03</td>
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<td>-0.04</td>
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<tr>
<td>From other than same ethnicity or Taiwanese</td>
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<tr>
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<td>-0.01</td>
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<td>-0.02</td>
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<tr>
<td>Perception of being discriminated against</td>
<td>0.32***</td>
<td>0.36</td>
<td>0.26***</td>
<td>0.29</td>
<td>0.21**</td>
<td>0.23</td>
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<tr>
<td>Self-esteem</td>
<td>-0.30*</td>
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<td></td>
</tr>
<tr>
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<td>2.05***</td>
<td>1.71***</td>
<td>1.43***</td>
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<tr>
<td>$R^2$</td>
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<td>0.21***</td>
<td>0.30***</td>
<td>0.32*</td>
<td>0.36***</td>
</tr>
</tbody>
</table>

**Notes:** *p < 0.05; **p < 0.01; ***p < 0.001
4.4 Perceived discrimination, self-esteem, and sociocultural barriers

Immigration experiences refer to the life of immigrant brides in Taiwan. Especially, the research concerns the experience of discrimination in Taiwan. Perceived discrimination not only is the personal feeling of immigrant brides, but also can reflect a host community's attitude toward immigrant brides. Discrimination reflects the acceptance of immigrant brides. Those who perceived being discriminated against are likely to report experiencing symptoms of depression and anxiety, compared to immigrant brides not experiencing discrimination. As shown in Tables II and III, the perception of being discriminated against significantly determines the symptoms of depression and anxiety. Those who perceived higher level of discrimination report having a greater incidence of depression and anxiety. In sum, the fourth hypothesis is supported.

Model 5 in Tables II and III shows that the effects of self-esteem on the psychological well-being of immigrant brides are significant. Those who with stronger self-esteem report fewer symptoms of depression and anxiety. However, the effect of self-esteem on anxiety is indirect; the effect is mediated by sociocultural barriers (shown in Model 6 in Table III). In sum, H5 is partially supported.

Model 6 in Tables II and III shows the effect of sociocultural barriers on the symptoms of depression and anxiety. Sociocultural barriers reflect the ability of immigrant brides to manage their daily lives. For example, confronting sociocultural barriers, immigrant brides have difficulties, such as accessing public transportation systems, partaking in ritual activities, and enjoying local foods, and so on. Therefore, we hypothesize that those who perceive more sociocultural barriers may have more difficulties facing daily life and perceive more stress living in Taiwan, and then are more likely to report symptoms of depression and anxiety. The statistical results in Tables II and III indicate the significant positive associations with sociocultural barriers and symptoms of depression and anxiety. Those who experience more sociocultural barriers are more likely to report the symptoms. In sum, the hypothesis (H6) stating the positive relationship between sociocultural barriers and symptoms of depression and anxiety is supported.

5. Conclusions and discussions

Due to the marriage market imbalance in Taiwan, a great number of female immigrants mainly from China, Vietnam, Indonesia, Thailand, Cambodia, and the Philippines have moved to Taiwan for marriage. The well-being of the immigrant brides contributes to the future of their children who are so-called "children of neo-Taiwanese (新台灣之子)." Psychological well-being of immigrant brides is therefore an important public health issue in Taiwan. The present research focuses on the factors that may affect psychological depression and anxiety of immigrant brides.

Drawing from the data collected from 366 surveyed immigrant brides, we find that perceived discrimination and sociocultural barriers are the two most influential factors associated with the symptoms of depression and anxiety. Perceived discrimination and sociocultural barriers put immigrant brides at risk; they reduce the psychological well-being of immigrant brides by inducing symptoms of depression and anxiety. Those who perceive being discriminated against or had more sociocultural barriers are more likely to have symptoms of depression and anxiety. In an unwelcoming or unfriendly community, immigrant brides are more likely to be discriminated against. Unfriendly environments can cause immigrant brides to experience more acculturative stress. Sociocultural barriers can be another stressor. In the long run, if immigrant brides experience more sociocultural barriers, they are more likely to develop symptoms of depression and anxiety.

In addition, self-esteem may play a protective role in alleviating depression. The statistical results clearly demonstrate those who reporting greater self-esteem have fewer symptoms of depression. The effect of emotional social support is not clear. Emotional
supports from “the same ethnic group” in general have a greater influence in coping with acculturative stress than those receiving support from other ethnic groups. As shown in Models 2-5 in Table II, the emotional social support from “the same ethnic group” significantly reduces the symptoms of depression, but it is unsuccessful in eliminating the anxiety of immigrant brides. The other two types of emotional social supports, in general, have no significant effects on reducing the symptoms of depression and anxiety. The results even show receiving emotional social support from other groups can lead to the emergence of depression and anxiety.

It is worthy to note that Taiwan, South Korea, and China generally share a similar culture; they are influenced by patriarchism and Confucianism. The natives somehow look down on foreigners, especially those who are from less-wealthy areas or countries. Immigrant brides from ASEAN countries are disadvantaged in both gender and ethnicity dimensions in these three East Asian countries. The deprived status makes the female immigrants in transnational marriages in Taiwan more vulnerable. To enhance their psychological well-being, social service programs which are initiated by governments and non-profit organizations can be emphasized on networking immigrant brides with people within the same ethnic group, and providing the female marriage newcomers more lessons and activities to raise their self-esteem and to develop their sociocultural adaptation. Additionally, improving the societal atmosphere to accept immigrant brides and to lessen the discrimination against them is equally important. In sum, the findings in the Taiwan-based research may provide some knowledge for the other two countries in developing prevention and intervention strategies and/or programs to enhance the psychological well-being of immigrant brides.

Notes
1. An “immigrant bride” is a scholarly term that refers to a female of transnational marriages. In the present research, an immigrant bride is a female newcomer in Taiwan marrying to a native husband.
2. Nowadays, more than 10 percent of elementary and junior high school students in Taiwan have either a mother or a father from foreign countries.
3. These eight cities and countries have more immigrant brides than the other areas.
4. “Immigrant Day” is a festival organized by city or county governments separately to welcome immigrants. It usually takes place on one Sunday in December that is not an official holiday.
5. See “www.victoria.ac.nz/cacr/research/mirips” for more information on the project.

References


Further reading


Appendix

<table>
<thead>
<tr>
<th>Variable or dimension</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationality</td>
<td>A categorical variable: Respondents are classified into 4 groups: Chinese, Vietnamese, other ASEANs, and other. Chinese immigrant brides serve as the reference group for the regression analysis</td>
</tr>
<tr>
<td>Years of staying in Taiwan</td>
<td>An ordinal variable</td>
</tr>
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<td>Emotional social supports</td>
<td>Three dimensions of emotional social supports:</td>
</tr>
<tr>
<td></td>
<td>(1) Emotional social supports “from same ethnic group” (mean = 3.05; SD = 1.13)</td>
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<td></td>
<td>(2) Emotional social supports “from Taiwanese” (mean = 2.84; SD = 1.17)</td>
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<td>(3) Emotional social supports “other than the same ethnicity or Taiwanese” (mean = 2.49; SD = 1.20)</td>
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<td>Acculturation strategies</td>
<td>Four acculturation strategies:</td>
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<td>(1) Integration; the mean of 4 indicators; Cronbach’s $\alpha$ = 0.79 (mean = 4.00; SD = 0.84)</td>
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<td>(2) Assimilation; the mean of 4 indicators; Cronbach’s $\alpha$ = 0.70 (mean = 2.82; SD = 0.92)</td>
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<td>(3) Separation; the mean of 4 indicators; Cronbach’s $\alpha$ = 0.70 (mean = 2.72; SD = 0.93)</td>
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<td>(4) Marginalization; the mean of 4 indicators Cronbach’s $\alpha$ = 0.81 (mean = 2.40; sd = 1.00)</td>
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<td>Perception of being</td>
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<td>The mean of 8 indicators; Cronbach’s $\alpha$ = 0.90 (mean = 2.28; SD = 0.78)</td>
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<td>The mean of 5 indicators; Cronbach’s $\alpha$ = 0.91 (mean = 2.38; SD = 0.84)</td>
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Table AI.

<table>
<thead>
<tr>
<th>Variables and dimensions</th>
<th>Notes</th>
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Corresponding author
Chun-Hao Li can be contacted at: chl@saturn.yzu.edu.tw

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A unique pattern of one-child family migration in China
The effects of personal features, family endowment and institutional elements

Yingtan Mu
Insurance and Social Security Research Center,
Southwestern University of Finance and Economics, Chengdu, China, and

Xin Yuan
Nankai University, Tianjin, China

Abstract
Purpose – At the end of the 1970s, the Chinese government enacted the one-child policy; now the one-child successively enters into the labor market and reaches the age for marriage and childbirth. The floating population group of China’s interior regions also experiences the heterogeneity changes. The purpose of this paper is to analyses the reasons for the difference of family migration between one-child and non-only child using the binary logit regression model – from the three aspects of individual characteristics, family endowment and institutional factors were investigated.
Design/methodology/approach – Family migration or individual migration of the floating population is the dichotomous dependent variable and therefore the binomial logistic regression analysis model is selected.
Findings – It is found that the tendency of one-child family migration is significantly higher than that of non-only child. The main reason is that the one-child has obvious advantages in terms of individual characteristics, family endowment and institutional factors.
Originality/value – The previous researches on family migration: first, the previous researches mainly analyzed the impact of the human capital and family income on the family migration from the perspective of economics and neglected the discussion on the family structure, life cycle, family level factors and Hukou’s limitation; second, most researches considered the migration as a whole. In fact, the migration population is no longer a highly homogeneous group and gradually become diversified.
Keywords Difference, Family migration, Influential factors, One-child
Paper type Research paper

1. Review
Family migration in China had attracted the attention of some researchers in the early 1990s, but only in recent decade, it has gradually and widely caught the attention of the domestic academia. At present, the domestic academia has defined family
migration with the theories of “one couple” (Zhou, 2004), “nuclear family,” migration with relatives (Wang and Wang, 2011) and “blood relationship.” The family migration proportion of which the householder and his spouse were migrants had reached 47.18 percent in 2000 (Zhou, 2004); in one decade from 1990 to 2000, the proportion of co-migration by a husband and a wife increased from 7.44 to 46.06 percent across the country (Chen, 2012).

Family migration in early days was mainly for the purpose of increasing the family income and then someone capable was selected to migration. Therefore, the individual characteristics of the forerunner have great impact on family migration, specifically including the age, educational level, length of residence, etc. The new economic migration theory put forward by Stark, Bloom, Taylor, etc. in the 1980s emphasized on the importance of family as the subject of decision making and the family migration was not only based on the principle of maximum expected wage of the family to decide the migration of a family member, but also to minimize the family risk. By using the theory of new economic migration, many studies have analyzed the impact of personal and family endowment on family migration (Chen and Liu, 2012).

There are two main features of the previous researches on family migration: first, the previous researches mainly analyzed the impact of the human capital and family income on family migration from the perspective of economics and neglected the discussion on the family structure, life cycle, family level factors and Hukou’s limitation. second, most researches considered the migration as a whole. In fact, the migration population is no longer a highly homogeneous group and gradually become diversified. Some scholars have carried out comparative researches on the migration in the intergeneration and employment identification, but the comparative researches on one-child and non-only child are relatively few.

Given this, there are mainly three objectives for this research: observing whether there is obvious difference in the family migration between one-child and non-only child; analyzing the factors influencing the family migration of one-child and non-only child from the perspective of individual characteristics, family endowment and system factor; comparing the differences of influencing factors between the one-child and non-only child; the trajectory difference of family migration between one-child and non-only child, and the regulating effect of individual characteristics, family endowment and system factor.

2. Research design

2.1 Data

The “Dynamic Monitoring Data of Nationwide Floating Population in 2014” is used in this paper and the respondents are the migration population in the age group of 15-59 years and not a native of where he or she is currently living. The forerunning migrants have great impact on family migration, which is an important factor for the continuous migration of other family members, and therefore some samples of non-forerunning migrants are deleted. The relatively common migration under the present condition of China is mainly for the purpose of profit, and the migrations due to marriage, accompanying migration, relocation migration, relatives visiting, studies, etc. are not included in the present research. Furthermore, the one-child policy was issued in 1979 and then promoted nationwide, but if the family had one-child before 1978 then it will not be allowed to have the second child; thus, the actual one-child can extend to the birth cohort of 1978 onwards. On account of the possibility of entering into marriage and labor market in 2014, the birth cohort of 1978-1993 is taken as one-child herein. Finally, 61,046 samples were analyzed.
2.2 Method
Family migration or individual migration of the respondents is two categorical variables and therefore the binary logistic regression analysis is a good method of analyzing the pattern of migration:

\[
FM_i = \beta_0 + \sum \beta_{1i} \text{Person}_i + \sum \beta_{2i} \text{Family}_i + \sum \beta_{3i} \text{Institu}_i + \sum \beta_{4i} \text{Contr}_i + e_i
\]  

(1)

On the basis of the decomposition method of Fairlie and the regression Equation (1), the average difference of two groups \(Y\), equal to \(\bar{Y}\), can be decomposed into:

\[
\bar{Y}_0 - \bar{Y}_n = \left[ \sum_{j=1}^{N_0} \frac{F\left(x^j_0 \beta_0\right)}{N_0} - \sum_{j=1}^{N_n} \frac{F\left(x^j_n \beta_0\right)}{N_n} \right] + \left[ \sum_{j=1}^{N_0} \frac{F\left(x^j_0 \beta_1\right)}{N_0} - \sum_{j=1}^{N_n} \frac{F\left(x^j_n \beta_1\right)}{N_n} \right]
\]  

(2)

\[
\bar{Y}_0 - \bar{Y}_n = \left[ \sum_{j=1}^{N_0} \frac{F\left(x^j_0 \beta_2\right)}{N_0} - \sum_{j=1}^{N_n} \frac{F\left(x^j_n \beta_2\right)}{N_n} \right] + \left[ \sum_{j=1}^{N_0} \frac{F\left(x^j_0 \beta_3\right)}{N_0} - \sum_{j=1}^{N_n} \frac{F\left(x^j_n \beta_3\right)}{N_n} \right] + \left[ \sum_{j=1}^{N_0} \frac{F\left(x^j_0 \beta_4\right)}{N_0} - \sum_{j=1}^{N_n} \frac{F\left(x^j_n \beta_4\right)}{N_n} \right]
\]  

(3)

The total number of samples of Group \(j\), show the vector of the estimated coefficient value of Group \(j\) and the vector of individual characteristics, family endowment and system factor of Area \(j\). \(F\) means the accumulative distribution function of logit. The first item is explicable, namely, on account of the difference of binomial logistic regression analysis model of one-child and non-only child and the second item is not explicable, showing the difference of regression coefficient of one-child and non-only child.

The analysis strategy where the said variables are substituted into the regression mode one by one is used herein to estimate the age trajectory difference of migration of family with one-child and non-only child and to evaluate the regulating effect of the individual characteristics, family endowment and system on the age trajectory:

\[
FM_i = \beta_0 + \beta_{1i} \text{One} - \text{child}_i + \sum \beta_{4i} \text{Contr}_i + e_i
\]  

(4)

\[
FM_i = \beta_0 + \beta_{1i} \text{One} - \text{child}_i + \sum \beta_{1i} \text{Person}_i + \sum \beta_{4i} \text{Contr}_i + e_i
\]  

(5)

\[
FM_i = \beta_0 + \beta_{1i} \text{One} - \text{child}_i + \sum \beta_{2i} \text{Family}_i + \sum \beta_{4i} \text{Contr}_i + e_i
\]  

(6)

\[
FM_i = \beta_0 + \beta_{1i} \text{One} - \text{child}_i + \sum \beta_{3i} \text{Institu}_i + \sum \beta_{4i} \text{Contr}_i + e_i
\]  

(7)

2.3 Setting of the main variables
2.3.1 Dependent variables. Family migration has two meanings: the first one is that the unmarried migration population form a family in the process of migration and the second one is that one or some members of the family migrates and then it turns into the migration of the whole family, namely, the migrant transforms from the individual into a family (Chen, 1996). The second migration pattern is mainly discussed herein; in addition, the present research will focus on the nuclear family members formed by one couple and the unmarried children for the sake of classification and comparison, and it also includes the migration mode of childless couples; the completion of family migration is considered as “0,” and otherwise as “1.”
2.3.2 Independent variables. Based on the measurement Equation (1), we set the independent variables as follows:

2.3.2.1 Individual characteristics. The first one is employment identification; Tervo points out that the employment of laborers can generally be divided into three forms, namely, employment, self-employment and non-employment, respectively, through the research on the labor market in Finland, and for that reason, the migration is divided into the self-employer and the employee. The second one is the length of residence; the length of residence for personal migration is the interval between the time of questionnaire inquiry and the time when the person comes to the local place, and the length of residence for the family migration is calculated as the terminal time between the forerunning migrant and the second migrant of the family.

2.3.2.2 Family endowment. The first one is family income; the family migration decision is closely related to the income gap between urban and rural families. Therefore, the family or other family members will take the economic income as one of the main basis for decision making and the average monthly income of family is taken as logarithm herein. The second one is family life cycle; family life cycle theory is another important theory used to explain family migration and is widely used to observe the time selection of family, particularly for the nuclear family’s social behaviors. In the family life cycle theory, marriage and fertility are two important events and taken as the symbols of family life cycle. The third one is the household saving rate, the disposable income of the interviewee family minus the expenditure makes the savings, and the proportion of savings to disposable income of the family is defined as the household saving rate; The fourth one is the social insurance participation of the family; although the economic risk faced by the migrant is difficult to accurately envision, and when the interviewee encounters some risk events, the social insurance will, to a great extent, help them to maintain the financial stability. It must be pointed out that the social insurance participation of the forerunner is investigated in the monitoring data of floating population and the impact of insurance condition of the forerunner on the financial stability of the family is also determined by the financial status of the forerunner in the family. Therefore, we take the comparison \( r \) between the monthly income of the forerunner and the monthly income of the family as an importance index and then multiply the social insurance participation.

2.3.2.3 Social structure, including two variables. 

Hukou and region. We choose hukou at the time of birth as the social structure variable to differentiate the social structure difference of one-child and non-only child, namely, we assume the social status and social environment that the non-agricultural household registration and agricultural household registration are different. In addition, based on the economic development level of the migration region, it is classified into eastern region, central region and Western region.

3. Results

3.1 Descriptive analysis

Table I provides the distribution of one-child and non-only child family. The result shows that the family migration probability of one-child is 77.2 percent and probability of non-only child is only 74.5 percent. It is visible that the one-child family migration tendency is more obvious.

One-child is superior to non-only child in education degree, occupational condition, self-employment/employment and other aspects (Table I) and there is significant difference in the living conditions between these two groups. Specifically, the proportion of one-child whose education degree is middle school and below is about 45.2 percent, the same proportion of non-only child is 65 percent, and the latter is 9.8 percent higher than the former; the proportion of one-child who receives higher education is about 30.2 percent, the same proportion of non-only child is 13.27 percent and the former is 17 percent higher than the latter.
The proportions of one-child acting as the principal of enterprise and public institution and self-employed are, respectively, 16.4 and 37.8 percent which are far higher than 8.51 and 30.8 percent of non-only child. In terms of family endowment, one-child has advantages in family structure, family income and family security and other aspects, but there is no significant difference only in household saving rate (Table I). In institutional factors, the one-child policy is implemented differentially in urban areas and rural areas; therefore, the policy is strictly executed in urban areas and the one-child family becomes a common phenomenon; but many families in rural areas will give birth to two or more children. As a result, proportion of one-child who has urban hukou is far higher than that of non-only child.

### Table I. The distribution of characteristics of one-child and non-only child

<table>
<thead>
<tr>
<th>Family migration</th>
<th>Non-only child</th>
<th>One-child</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>29.76</td>
<td>3.445</td>
<td>29.09</td>
</tr>
<tr>
<td>Migration range</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-county</td>
<td>0.503</td>
<td>0.500</td>
<td>0.493</td>
</tr>
<tr>
<td>Cross-city</td>
<td>0.312</td>
<td>0.463</td>
<td>0.306</td>
</tr>
<tr>
<td>Trans-provincial</td>
<td>0.185</td>
<td>0.388</td>
<td>0.201</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior high school and</td>
<td>0.650</td>
<td>0.477</td>
<td>0.452</td>
</tr>
<tr>
<td>high school</td>
<td>0.217</td>
<td>0.412</td>
<td>0.246</td>
</tr>
<tr>
<td>Junior college</td>
<td>0.0926</td>
<td>0.290</td>
<td>0.172</td>
</tr>
<tr>
<td>Bachelor’s degree or above</td>
<td>0.0401</td>
<td>0.196</td>
<td>0.130</td>
</tr>
<tr>
<td>Migration time</td>
<td>0.494</td>
<td>1.478</td>
<td>0.610</td>
</tr>
<tr>
<td>Residence intention</td>
<td>0.576</td>
<td>0.494</td>
<td>0.623</td>
</tr>
<tr>
<td>Marriage age</td>
<td>23.46</td>
<td>2.911</td>
<td>24.04</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persons in charge of enterprises</td>
<td>0.0851</td>
<td>0.279</td>
<td>0.164</td>
</tr>
<tr>
<td>Professional or clerk</td>
<td>0.343</td>
<td>0.475</td>
<td>0.364</td>
</tr>
<tr>
<td>Business and service personnel</td>
<td>0.249</td>
<td>0.432</td>
<td>0.216</td>
</tr>
<tr>
<td>Agriculture and transportation</td>
<td>0.173</td>
<td>0.378</td>
<td>0.141</td>
</tr>
<tr>
<td>No fixed occupation</td>
<td>0.150</td>
<td>0.357</td>
<td>0.116</td>
</tr>
<tr>
<td>Self-employment</td>
<td>0.378</td>
<td>0.462</td>
<td>0.308</td>
</tr>
<tr>
<td>Number of children</td>
<td>1.144</td>
<td>0.598</td>
<td>0.899</td>
</tr>
<tr>
<td>Household income</td>
<td>5.700</td>
<td>2.491</td>
<td>6.149</td>
</tr>
<tr>
<td>Household saving rate</td>
<td>0.473</td>
<td>0.183</td>
<td>0.472</td>
</tr>
<tr>
<td>Children under 3 years</td>
<td>0.401</td>
<td>0.490</td>
<td>0.414</td>
</tr>
<tr>
<td>Unemployment insurance</td>
<td>0.0889</td>
<td>0.236</td>
<td>0.165</td>
</tr>
<tr>
<td>Endowment insurance</td>
<td>0.112</td>
<td>0.260</td>
<td>0.196</td>
</tr>
<tr>
<td>Medical insurance</td>
<td>0.106</td>
<td>0.254</td>
<td>0.193</td>
</tr>
<tr>
<td>Household register</td>
<td>0.118</td>
<td>0.323</td>
<td>0.312</td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East region</td>
<td>0.454</td>
<td>0.498</td>
<td>0.443</td>
</tr>
<tr>
<td>Central region</td>
<td>0.250</td>
<td>0.433</td>
<td>0.279</td>
</tr>
<tr>
<td>West region</td>
<td>0.296</td>
<td>0.457</td>
<td>0.279</td>
</tr>
</tbody>
</table>

**Notes:** *p < 0.05; **p < 0.01; ***p < 0.001

3.2 Influence factors for one-child and non-only child family migration

Analysis framework taking family migration as the study subject is established in accordance with new economics of migration and the logit regression model is utilized to verify it. The result shows that (Table II), pseudo $R^2$ of one-child and non-only child family migration is,
respectively, 0.2651 and 0.2149 and the variable of personal characteristic, family endowment and social structure has a stronger explanatory power for the family migration.

3.2.1 Group difference for influence of individual characteristic on family migration. Among the variables of individual characteristics of the forerunner which influence the family migration, migration distance, education and occupational condition all show obvious difference after gender and age are controlled. There is no significant group difference for the influence of residence intention and employment status on family migration.

For one-child family, there is no significant difference between the occurrence ratio that migration in the city drives family migration and that of inter-provincial migration. However, compared with inter-provincial migration, the occurrence ratio that migration in
the province drives family migration is about 122 percent. In terms of the global significance, the influence of variable of mobility scope on non-only child family migration is more significant. However, there is no significant difference between migration in the province and inter-provincial migration, and the migration in the city significantly reduces the occurrence ratio of its family migration to be just 60.77 percent.

For both one-child and non-only child, the influence of education of the forerunner on family migration is nonlinear. By comparing the regression coefficients of two models, it can be found that, there is obvious group difference for the influence of education on family migration. For the non-only child family, education of high school and above has a significant negative effect on family migration, which is about 90.57 percent of the migrant with education of middle school and below. In addition, the probability of the forerunner who receives higher education to drive family migration is significantly higher than the forerunner with education of middle school and below and the occurrence ratio of the family migration is, respectively, 114 and 124 percent of the latter. Relative to non-only child, the positive effect of education on one-child family is smaller and when education is high school and junior college, the influence on family migration is significantly negative, in which, the occurrence ratio of family migration in case of education of high school is just 78.04 percent of the floating population with education of middle school and below. The higher the education is, the greater the benefits obtained in the market migrant may be, so they are more inclined to migrant, and the family migration will influence the flexibility of migration, thus family migration with settling tendency is less inclined to be adopted.

In occupational characteristics, the occurrence ratio of family migration by the non-fixed-occupation migration population is the highest. However, relative to the principles of state authorities, enterprises and public institutions, professional technical personnel and other upper-level non-physical occupations, working on lower-level physical occupations will reduce the occurrence ratio of family migration. Because both the income and stability of the migration population working on lower-level physical occupations in local will be greatly lower than those who work on upper-level non-physical occupations, relatively speaking, they will face greater risk in family migration. Family migration by the non-fixed-occupation migration population may be the necessary strategies for them to reduce the risks. Employment of labor force also has the same significant effect on whether one-child and non-only child does family migration or not. Relative to the employees who work for others, the employers and self-supporting laborers with self-decision-making ability are more inclined to have family migration. Because the employers have higher income than the employees, they possess a relatively stronger ability to migrate their families, and the family migration of self-supporting laborers can make them obtain more help from their family members in work, so they will bring greater benefit to their families.

Length of residence has a similar effect on the family migration of one-child and non-only child, which means that the coefficient of length of residence is significantly negative and of quadratic terms is significantly positive. This means that the family migration is completed in a very short time and a majority of core family members migrate with the forerunner at the same time or migrate to the city where the forerunner is in a very short time after the forerunner migrates. Length of residence will significantly influence the occurrence ratio of family migration, because the length of the residence time represents the stability of the laborer in this area and the longer the residence time is, the more likely the laborer is to obtain a stable job so as to be equipped with the will and ability of family migration.

3.2.2 Group differences for the influence of family endowment on family migration. Among the family endowment variables that influence family migration, there are obvious group differences in family structure, family life cycle, etc.; however, there are no obvious differences in influences of family income, family saving rate and age of marriage on family migration.
The number of children in a family has remarkable negative influence on family immigration of both one-child family and non-only child family. Children are the main object of family consumption, and more children may result in an increase of migration cost, which will hinder family migration. In the non-only child model, influence of raising a less-than-three-year-old baby on family migration failed to pass statistical significance test, namely, family life cycle does not have a remarkable influence on family migration of non-only child; however, raising a less-than-three-year-old baby does cause notable reduction of probability of family migration of one-child. Family security in these two models has passed the statistical significance test; namely, the family security level has reduced the probability of family migration. The reason is that as there is generally a lack of social security system, and to avoid uncertainty and lower risks, the migration population chooses family migration, making family “altruistic behavior” as substitute for formal social security system. The life cycle stage has close relation with the decision on the manner of family migration and such manner will vary with family life cycle. According to the regression result in Table II, one-child family with a less-than-three-year-old baby shows a remarkably lower occurrence rate of family migration, while the influence of less-than-three-year-old baby on non-only child family migration has not passed the statistical significance test. As a family is not only a unit which pursues economic revenue maximization, but also where a primary consanguinity lies, when limited conditions for basic physiological needs have been met, love and safety become new needs of the family members. For one-child family, family consanguinity becomes an urgent psychological need. In terms of influence of economic factors, the higher propensity to save leads to less incentive to have a long-term stay at the local region. Saving most of one's monthly income indicates that such person comes to the local region to make money and then return home; therefore, such person will reduce his/her expenditure at the local region consciously. However, with a person staying increasingly longer, his/her adaptability to such city will increase and his/her lifestyle will become close to urban residents and the propensity to save declines and the intention to stay increases.

3.2.3 Group differences for the influence of institutional factors on family migration. Different from the Western research based on free migration hypothesis, family migration of the Chinese is deeply influenced by institutional constraints. The unique form and practices of family migration in China are embedded within the social structure of China. According to statistical analysis, the elements of social structure do have a remarkable influence on family migration.

With other variables controlled, hukou has a significant influence on family migration of one-child. Compared with rural–urban migration, city-to-city migration is more inclined to take the way of family migration. It proves that new migration family theory, instead of only limited within the characteristics of family elements, can explain the migration practices in macrostructure. Compared with the migration population of rural hukou, non-only child migration population of urban hukou is less likely to choose family migration as urban–urban movement means that there is greater possibility in relative profit and loss of social security, namely, there are larger risks for urban family migration. Urban–urban migration means different things to one-child and non-only child: for one-child, it means weakening of threshold limitation; however, for non-only child, it means higher risks.

According to the analysis result of Table II, with other factors controlled, middle and eastern areas show remarkable positive effects on family migration of one-child family while eastern areas show a reduction of occurrence rate of family migration of non-only child family. Regional economy is a key factor attracting family and urban economy has a remarkable influence on the occurrence of family migration. China’s migration by floating population is the one motivated by economic attraction. Regions of more developed economy can provide more opportunities for the migrated family to gain revenues to obtain
better family services and improve family life, having stronger attraction for family
migration; on the other hand, economically developed area means higher living cost and
more severe institutional segregation, and that migrated family is not likely to integrate into
the local society. Irrespective of whether only child or non-only child family, such
contradiction exists in family migration.

3.2.4 Difference decomposition on family migration of one-child and non-only child.
The section above analyzes the difference of factors affecting family migration of one-child and
non-only child by taking advantage of feature distribution and logit regression model.
The following section will use Fairlie decomposition to decompose the reasons leading to the
group difference. The analysis results in Table III can be divided into three parts. The first
section is general decomposition on family migration difference. The second section is variable
decomposition. The third section is results of variable “classification and decomposition.”

On the basis of using regression coefficient of one-child in flow, excluding household saving
rate and family life cycle, household registration and region, the differences of other variables
have obvious effects on the differences of family migration with one-child and non-only child.

From the statistical results of general decomposition, we realize that family migration
difference of one-child and non-only child results from group difference (endowment
difference). Regardless of other cases by considering other explainable variables, family
migration difference of one-child and non-only child is 0.027, among them the difference of
explainable section is 0.0441 and it is 163 percent of general difference. The unexplainable

<table>
<thead>
<tr>
<th>Variable decomposition</th>
<th>Regression coefficients of one-child</th>
<th>Regression coefficients of non-only child</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total decomposition</td>
<td>0.0441</td>
<td>-0.0353</td>
</tr>
<tr>
<td>Age</td>
<td>0.00263</td>
<td>0.00758</td>
</tr>
<tr>
<td>Migration range</td>
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<td>-0.000675</td>
</tr>
<tr>
<td>Gender</td>
<td>0.00205</td>
<td>0.00727</td>
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<tr>
<td>Migration time</td>
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<td>0.00229</td>
</tr>
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<td>Education</td>
<td>0.00261</td>
<td>-0.00111</td>
</tr>
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<td>Residence intention</td>
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<td>0.00843</td>
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<td>Employment status</td>
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<td>0.00254</td>
</tr>
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<td>Occupation</td>
<td>-0.000399</td>
<td>-0.00596</td>
</tr>
<tr>
<td>Number of child</td>
<td>0.00300</td>
<td>-0.151</td>
</tr>
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<td>Household income</td>
<td>0.000577</td>
<td>0.0183</td>
</tr>
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<td>Household saving rate</td>
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</tr>
<tr>
<td>Children</td>
<td>-9.51e−06</td>
<td>-0.0157</td>
</tr>
<tr>
<td>Marriage age</td>
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<td>4.99e−06</td>
</tr>
<tr>
<td>Family security</td>
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<td>-0.00412</td>
</tr>
<tr>
<td>Household register</td>
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<td>0.000828</td>
</tr>
<tr>
<td>Area</td>
<td>0.000584</td>
<td>0.0888</td>
</tr>
</tbody>
</table>

Classification of decomposition

<table>
<thead>
<tr>
<th>Personal characteristics</th>
<th>Regression coefficients of one-child</th>
<th>Regression coefficients of non-only child</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.001992</td>
<td>0.02431</td>
</tr>
<tr>
<td>Family endowment</td>
<td>0.043101</td>
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</tr>
<tr>
<td>Institutional factors</td>
<td>-0.00101</td>
<td>0.09808</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.0181</td>
<td></td>
</tr>
</tbody>
</table>

Notes: *p < 0.05; **p < 0.01; ***p < 0.001

Table III. Coefficient decomposition of the difference of migration between one-child and
non-only child family
section is −0.017 and it is 63 percent of general difference. It shows that family migration difference of one-child and non-only child results from endowment difference of them. From the analysis results of classification and decomposition, endowment difference of one-child and non-only child is mainly reflected in family endowment. Family endowment difference altogether explains 97.73 percent of the explainable section and 160 percent of the general difference of family migration. Distribution difference of family formation and family income has an obvious effect on family migration difference of one-child and non-only child. The two factors altogether explain 84.92 percent of endowment contribution. Because children number of one-child family is higher that of non-only family and the number of children has a negative effect on family migration, eventually it results in the family migration difference between two groups enlarged by 0.033 unit standard deviation. The difference in family income level makes the difference between only child and non-only child family migration increased by 0.00877 unit standard deviation, which accounts for 19.89 percent of the overall endowment contribution. Difference in the level of family society security makes the family migration difference between two groups decreased by 0.00332 unit standard deviation. The reason is that the non-only child prefers to achieve the above purpose by family migration, instead of the condition in which one-child family avoids risks by increasing the social security level.

In terms of forerunner’s individual features, education level and dwelling intention allow the family migration difference between two groups enlarged by 0.00261 and 0.00492 unit standard deviation, respectively, which accounts for 5.92 and 11.16 percent of the general endowment difference. The reason is that the proportion of floating population in one-child who have attained higher education and intended to settle in movement place for long time is higher than non-only child migrants and both of them have positive regression coefficient. If the education level and dwelling intention of non-only child migrants is the same as the one-child, the difference between one-child and non-only child family migration will be obviously minimized. Dwelling time, job identity and employment have minimized difference of the two groups to some extent.

### 3.3 Age trajectory difference of family migration

In almost all ages, the proportion of family migration of one-child is always obviously higher than that of non-only child. In the initial age of 20-25 years, the difference of family migration of the two groups is small. The difference increases gradually and peaks at the age of 27-28 years, and the difference is minimized gradually again afterwards (Figure 1).

![Figure 1. Average family migration by age and one-family character](image-url)
According to the regression model of Table IV, the age trajectory difference of family migration between one-child and non-only child and the regulating effect by personal feature, family endowment and system factor are estimated. Figure 2 shows the age trajectory on the basis of predicted value from Model (1a), Model (1b) and Model (1c).

Analysis results of Models 1 and 2 show that the family migration percentage of one-child is obviously higher than that of non-only child throughout all age stages and the age has an obvious regulating effect on the slope and quadratic item. Model 1a has tested the regulating effect from the forerunner person feature on age trajectory of one-child and non-only child family migration. The result shows that the age trajectory difference of the

<table>
<thead>
<tr>
<th></th>
<th>Model (1)</th>
<th>Model (2)</th>
<th>Model (1a)</th>
<th>Model (1b)</th>
<th>Model (1c)</th>
<th>Model (1d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-child (non-only child)</td>
<td>0.123***</td>
<td>-0.066*</td>
<td>0.001**</td>
<td>-0.116***</td>
<td>0.020*</td>
<td>-0.143***</td>
</tr>
<tr>
<td>Age</td>
<td>-0.050***</td>
<td>-0.056***</td>
<td>-0.106***</td>
<td>-0.060***</td>
<td>-0.065***</td>
<td>-0.086***</td>
</tr>
<tr>
<td>Age×Age</td>
<td>0.001</td>
<td>0.003***</td>
<td>0.003***</td>
<td>0.001*</td>
<td>0.003***</td>
<td></td>
</tr>
<tr>
<td>Gender (women)</td>
<td>-0.018</td>
<td>-0.018</td>
<td>0.376***</td>
<td>-0.049**</td>
<td>-0.022</td>
<td>0.284***</td>
</tr>
<tr>
<td>Migration range (trans-provincial)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-county</td>
<td>-0.729***</td>
<td>-0.729***</td>
<td>-0.612***</td>
<td>-0.689***</td>
<td>-0.516***</td>
<td>-0.432***</td>
</tr>
<tr>
<td>Cross-city</td>
<td>0.015</td>
<td>0.015</td>
<td>0.016</td>
<td>-0.022</td>
<td>0.064***</td>
<td>0.037</td>
</tr>
<tr>
<td>One-child×Age</td>
<td>0.059**</td>
<td>-0.003*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One-child×Age²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>1.846***</td>
<td>1.866***</td>
<td>2.481***</td>
<td>-5.524***</td>
<td>1.911***</td>
<td>-3.568***</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05; **p < 0.01; ***p < 0.001

Table IV. The effect of individual characteristics, family endowment and institutional factors on the migration age of 21-35 years old migrant population (N = 61046)
two groups is obviously minimized by controlling the forerunner person feature. Figure 2 shows more clearly that the effect of forerunner person feature on age trajectory of family migration. Though individual feature has reduced the age trajectory difference between two groups to a large extent, the difference of one-child family migration is still significant. Model 1b and model 1c have, respectively, tested the family children number and household income, family saving rate and family life cycle and the social security level of family.

All the variables of family endowments can independently predict the trajectory of family migration and the disadvantages of family endowments have a close relationship with the reducing family migration. Besides, the trajectory difference of one-child and non-only child has changed dramatically. Non-only child has obvious advantage advantage throughout all the ages (Figure 2b). Model 1c has tested the effect of census registration and host region on the age trajectory of the two groups. The urban–urban movement has a positive effect on family migration in comparison with country-to-city migrant population. After controlling the system factors, the age trajectory difference of one-child and non-only child family migration has been minimized to some extent, but the advantages of one-child throughout the most ages are still obvious (Figure 2c).

4. Conclusions

From the perspective of family analysis, the paper uses the investigation and monitoring statistics of the national dynamic migrant population of 2014, and analyzes the influencing factors leading to the family migration difference of one-child and non-only child from individual features, family endowments and society structure.

First, by stepwise regression, it can be seen that family factor explains more about the model and has already exceeded the effect of forerunner’s individual feature. It mainly shows that the effect of the previous life event on the successive life course and the result of the previous life event will change the successive life course. For example, the family background difference of one-child and non-only child may result in achievements of the study, which will then result in work life and family endowment. The theory of family resource absence considers that when children increase in a family the resource attained by each child will be reduced, and it is difficult for parents to offer the same cultivation, care and money investment to each child. Therefore, in one-child family, one-child gets more concerns and expectations from their parents, and has more unparalleled resources than the non-only child. In comparison with the migrant population of non-only child, one-child has more chances to attain school education with a higher rate of higher education. Therefore one-child has advantages in occupation, family structure and income. The feature difference also affects migration.

Second, given that the birth of one-child in the Western society results from the decisions within the family, the birth of one-child in China is strictly restricted by the fertility policy which is not uniform but depends on the existing social structure that fertility policy varies obviously in city and rural areas. Therefore, it is necessary to have a discussion on the difference of one-child and non-only child on the level of social structure.

Third, the migrant population with low education level prefers to family migration in comparison with moderately educated population. Besides, the social security of the family has an obvious negative correlation with family migration which happens to have the same view as the new economic migration theory – family migration is determined not only on the principle of making anticipated family salary maximum but also making family risk the lowest. In Chinese traditional family culture, the person correlates with the family. Family also possesses the function of avoiding risks on condition that the development of the social security system is incomplete. This inseparability of family makes China’s population migration transferred to the whole-family migration.
References

Further reading

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Health and health care disparities among women in mainland China

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Abstract
Purpose – Women’s health is considered a big public health issue, impacting personal well-being, family reproduction, and society’s development. Since the foundation of the People’s Republic of China, major improvements in women’s social status and health have been made. However, far less has been achieved with respect to gender equality and women still face health disparities. The purpose of this paper is to provide a better understanding of health and health care disparities among women and their determinants in China today.

Design/methodology/approach – This paper used the Statistical Yearbook of Health and Family Planning 2014, the 2010 Women’s Social Status Survey and 2010 census data from the National Bureau of Statistics to give an overall description of disparity in health care and health outcome facing women.

Findings – Progress in health is not equally shared by the female population, and the differences in women’s health by region and in urban and rural areas are considerable. The existing health disparities are still faced by women in terms of life expectancy, hazardous working environment, and health care services. As to gender differences among the elderly aged 60+, men have better health status compared to women. In addition, women are more financially dependent on other family members for the main source of daily living, reflecting their economic disadvantages.

Originality/value – This study gives a comprehensive and the latest overview of trends of women’s health progress, disparities in health care, and health outcomes both in female population and between genders by using three data sources.

Keywords Gender inequality, Health disparity, Women’s health care

1. Introduction
Gender equality and women’s development is a lasting theme of mankind’s pursuit of equality and justice, a scale for measuring social progress, and an important goal in realizing sustainable development in our world (The State Council of China, 2015). Women’s health not only serves as the foundation of their personal development and well-being, but also determines family’s reproduction. Given the fact that traditional Chinese society was mainly characterized as male-dominant, women were disadvantaged in terms of social status, power, and well-being. For women, health risks were disproportionately distributed among them due to the poor performance of medical treatment and low accessibility to medical care services. Less educated, poorer, and rural-living women were more likely to become the targets of diseases. Since the foundation of the People’s Republic of China, major improvements in the status of women, as well as in health status, have been widely recognized (Lin, 1996). Despite the progress in women’s health in the past few decades, far less has been achieved with respect to gender equality. Also the differentials in women’s health by region and urban/rural areas are considerable (Yu and Sarri, 1997). According to the action platform of The United Nations Fourth World Conference on Women, health and well-being elude the majority of women, and a major barrier for women to the achievement

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of the highest attainable standard of health is inequality, both between men and women and among women in different geographical regions, social classes and indigenous and ethnic groups[1]. In this paper we first examine the progress of women’s health by reviewing the trends in MMR and hospitalized delivery rate over the past 20 years from the Statistical Yearbook of Health and Family Planning 2014. Then the 2010 population census data and the 2010 National Women’s Social Status data are used to deeply investigate the disparities of health care, health hazards in working environment, and health outcome facing women across different regions and between genders. In light of these existing inequalities, the final section focuses on the discussion of future policy interventions and strategies to eliminate inequalities and promotion of gender equality.

2. The progress made in the past two decades concerning women’s health
China has witnessed great progress in population health because of medical sanitation and service popularization and improvement brought about by the technological advancement and public policy at national level. This progress can be reflected in areas such as an increase in people’s life expectancy and a great reduction of under-five mortality rate. For example, during the “Eleventh Five-Year Plan” period, the national maternal, infant and under-five child mortality rates decreased, respectively, from 47.7/100,000, 19 percent and 22.5 percent in 2005 to 30.0/100,000, 13.1 percent and 16.4 percent in 2010[2]. For women’s health change, this paper will use two indicators to give an overall view to show how these ever-divergent differences converged in the past 20 years.

2.1 National hospitalized delivery rate from 1991 to 2013: diminishing rural-urban differences
Trends of hospitalized delivery rate are an indicator illustrating women’s overall health. Figure 1 shows the general trends in national hospitalized delivery rate in urban and rural places over the past 20 years. The urban-rural division in China is a long existing social agent influencing all aspects of everyday life. There are significant differences between urban and rural areas in terms of the quality and access to medical care. In 1991, the hospitalized delivery rate between two areas was more than 20 percent, indicating a huge disparity at that time. As time went on, both areas witnessed the rate going up gradually and the difference was continuously converging. Even in 2003, the divergence was nearly 20 percent. Later, the increase in hospitalized delivery in rural areas experienced a steeper increase while it slowly kept going up in urban areas. In 2013, the rate in both areas almost reached 100 percent. The past 20 are marked by great progress in national hospitalized delivery rate, along with the disappearance of the ever great urban-rural divergence in 2013.

Figure 1. National hospitalized delivery rate by urban and town, 1991-2013 (%)
2.2 MMR change from 1991 to 2013: converging rural-urban differences

The huge progress in women’s health can be indicated from changes of MMR[3]. Figure 2 shows that in 1991 rural and urban differences in MMR were 50/100,000. After that both urban and rural areas almost experienced a paralling decline until 2003. After 2003, the MMR in urban areas was kept almost instant at a lower level while rural areas underwent a faster decline. Since 2010, the two gradually converged with slight differences. The reduction of MMR, especially in rural areas, reflects the improvement of women’s health mainly due to improvement in the quality of basic health services and the increase in hospitalized delivery rate.

3. Existing health disparities facing women nowadays

The above section mentioned that women’s health has greatly stepped forward during the past 20 years resulting from changes in medical technology, people’s financing capacities, increasing knowledge about health behavior, and more access to health care services. However, inequity in health has also arisen as a large concern for Chinese society (Meng and Xu, 2014). Because of the difference in opportunities and constraints posed by social and individual factors, progress in health is not equally shared by the whole population. Individual determinants such as socioeconomic status (SES) can affect individuals’ earnings in the job market, nutrition of food-intake and dietary pattern, their capacity to respond to environmental challenges and include where they live, their capacity to address health care needs, the degree to which they have social support, and their level of social integration or isolation (Warnecke et al., 2008). These factors would in turn interact and help shape the inequality of health outcomes among women. In addition to the individual determinants, the regional disparity is another social dynamic. Significant gaps still persist in women and children’s health between urban and rural areas, between different population groups and between different regions. The problems threatening women’s health are still serious, and there is a relative lack of service capacity in the health system for grassroots women(see footnote 2). Next we will show how women’s health and health care differs across different regions.

3.1 The MMR difference by region from 1996 to 2010

Inequitable health outcomes result from inequities in the distribution of or access to resources that promote good health outcomes (Warnecke et al., 2008). MMR is an indicator showing population health of a specific region, which is impacted by the equity of access to health care and services (Wang and Gao, 2007). Despite the fact that the MMR has kept going down markedly in recent years, the gaps between different regions are still obvious. In western regions, the decline is steeper than that in central and eastern regions. From 1996 to 2010, the fluctuation of MMR in eastern regions was almost stable while the western region has undergone a dramatic reduction during 2000-2003, a little bit upward afterwards,
and a continuous decline after 2004. As to the trend of central region, it is characterized by a stable decline over the past few years. In 2010, the MMR in the Eastern, Central, and Western part of China was 17.8/100,000, 29.1/100,000, and 45.1/100,000, with a reduction of 16.0, 44.1, and 60.7 percent, respectively, compared to 2000. Still the rate in the Western part is 2.5 times as that of the Eastern part and 1.55 times compared to the Central part in 2010. Overall women in the Western part are still facing more risks due to the quality of hospitalized delivery treatment and service, nutrition intake during pregnancy, and maternal prenatal examination, reflecting the unequal allocation of resources between regions. This finding is consistent with a previous study confirming the health gap among the Eastern, Central, and Western parts of China (Liu et al., 2006) (Figure 3).

3.2 The life expectancy difference by province
The unbalanced development among different regions comes along with China’s social changes and progress. The Eastern coastal regions and direct controlled municipalities enjoy more opportunities compared to the inland areas. This discrepancy could also be reflected through health outcome such as life expectancy. From the 2010 census data, we compared the value of each province with the national average (77.37). In Figure 4 each bar represents the difference as to whether it is above or below the average.

Women living in Beijing, Shanghai, and Tianjin are top three in terms of life expectancy and each of them exceeds 80 years. In contrast, women in Western regions, such as Guizhou, Yunnan, Xizang, Qinghai, have relatively lower ones. The gap between Beijing, Shanghai, and Xizang is even more than ten years. This gap can be explained by the people’s living standard, medical care and service, and food nutrition pattern across these provinces. In addition, working environment is also an important risk factor. Next we will use the 2010 Women’s Social Status Survey to see the different distribution of working environment risks in a more detailed way.

3.3 The difference of hazardous working environment exposure by geographic regions
Work is linked to health via social resources, health care insurance coverage, hazardous or risky workplace conditions, and psychosocial characteristics of working environment[4]. Since the length of one’s occupation takes up the majority time of the whole life span, the exposure to various working environment may result in cumulative advantage or disadvantage on one’s mental and physical health. The report of the United Nations Fourth World Conference on Women claimed “women, particularly in rural areas and poor urban areas, are increasingly exposed to environmental health hazards owing to environmental

![Figure 3. National MMR by region, 1996-2010 (1/100000)](source)
The hazards of working environment is one crucial aspect impacting women’s health. This survey asks the respondents whether some factors detrimental to their health existed in their working/labor environment. It included chemical toxicant (pesticide is included), excessive weight burdening/long-time standing/squatting position work, noisy environment, and smoke/dust environment. Each item has three options: yes/no/not clear. Since the percentage of “not clear” is extremely low, we mainly consider the percentage answering “yes” and “no”. In order to search for the difference of detrimental exposure across various regions, we did the crosstab analysis to see the percentage of yes/no of each item. Table I shows that the percentage of “yes” was highest among Western women and was the lowest for women working in Beijing, Tianjin, and Shanghai. The direct controlled municipality (including Beijing, Tianjin, and Shanghai)/Eastern/Central/Western division shows the gradient in terms of the detrimental working-environment exposure. As to the chemical toxicant and dust/smoke environment, from direct-controlled municipalities to western regions, the percentage of “yes” is gradually increasing.

<table>
<thead>
<tr>
<th>Chemical toxicant (including pesticide)</th>
<th>Direct-controlled municipalities (Beijing, Tianjin, and Shanghai) (%)</th>
<th>Eastern region (eight provinces) (%)</th>
<th>Central region (eight provinces) (%)</th>
<th>Western region (12 provinces) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive weight burdening/long-time standing/squatting position work</td>
<td>5.0</td>
<td>9.0</td>
<td>10.8</td>
<td>13.7</td>
</tr>
<tr>
<td>Noisy environment</td>
<td>13.7</td>
<td>15.3</td>
<td>16.2</td>
<td>16.2</td>
</tr>
<tr>
<td>Dust/smoke environment</td>
<td>16.5</td>
<td>16.6</td>
<td>17.8</td>
<td>18.5</td>
</tr>
</tbody>
</table>

Table I. Percentage of employed women’s exposure to hazardous working environment by region

**Source:** The 2010 National Women’s Social Status Survey; figures shown in each cell are the percentage who answered “yes” of each item across the regions.
When it comes to excessive weight burdening/long-time standing/squatting position work environment, the percentage of “yes” in each region is nearly close to each other, with Beijing, Shanghai, and Tianjin being the lowest. Regarding the noisy environment, there is no significant difference among these regions, but the Western region has a little bit higher one. Overall, women in less developed regions are exposed to more detrimental working environment, which may gradually damage their respiratory system and central nervous system, making them more vulnerable to suffer chronic diseases in their old age.

3.4 Health care disparity between urban/rural divisions

Maternal health care is of vital importance to the newborn baby for it can prevent transmission of AIDS, syphilis, and hepatitis B from mother to child and birth defects. It is also related to the population quality in the long term, impacting both the family’s harmony and society’s development. The prenatal examination is one important aspect of maternal care. The 2010 Women’s Social Status Survey asked the interviewee whether they had undergone prenatal examination as well as frequency of this examination. Table II shows the great urban-rural discrepancy. Half urban women have undergone the examination according to the doctor’s advice, whereas this percentage is only 19.1 for rural women. There are still 43.1 percent rural women who have never undergone this examination before delivery, while the corresponding figure is 16.3 percent for urban women. The lack of health knowledge and consciousness, and insufficient cover of maternity care institutions can be partially accounted for the high percentage of rural women without prenatal examination. It calls into future work to be mainly dealt with the advancement of equitability and accessibility of maternal and child health services covering both areas.

In addition to the discrepancy of prenatal examination, it is also the same case with gynecological examination. The same survey inquired women about their latest year of gynecological examination and results are shown in Table III. Over 40 percent rural women have never done this examination, while in urban areas this percentage is 25.2 percent. Between 2006 and 2010, 62.5 percent urban women and 41.9 percent rural women have experienced this examination, respectively. In order to provide better services on child-bearing and related matters, especially for the floating and less educated women, more should be done on gynecology education to increase health consciousness, especially in surveillance and treatment of gynecological diseases.
3.5 Health status differentials by gender: results from the sixth census data

In addition, not only is health disparity manifested through different social agents discussed above among women themselves, but also health difference between genders is one aspect to be addressed. There are some socially constructed male dominance norms or culturally shaped masculinity which regard women as subordinate and give them cumulative disadvantageous impact both in working environments and families, ultimately leading to gendered health disparity.

China is one of the countries that is being most impacted by aging population. Given the circumstance that the number of the elders keeps rising and is estimated to swell to 330 million by 2050 (nearly a quarter of its total population), the elders’ health is of great importance to the whole society and families in terms of looming financial and social care burdens. Besides, from the life course perspective, senility is the last period and health condition in this stage acts as the cumulative advantage or disadvantage due to variation in resources access, financing abilities, medical care and facilities, and risk factors exposure across one’ whole life span. According to the latest WHO data, life expectancy in China is 74.1 for men and 77.0 for women[6], and in Western countries women are also advantageous in terms of life expectancy with the gap being three to seven years (Wang, 2013). The fact that women enjoy longer life expectancy does not mean women are healthier. Women’s longer life expectancy can be partially explained by some biological reasons which favor women’s viability, thus leading to the lower mortality at advanced ages. However, one issue which should not be ignored is women also suffer longer period of morbidity and typically have more frailty symptoms (Gu et al., 2009). Thus, life expectancy or longevity is not the only proper indicator reflecting the difference and disparity between two genders. Next we will use the 2010 census data to provide a comprehensive comparison of gendered health status.

The benefit of census data lies in their good representativeness and avoidance of bias caused by sample data. It includes the 60+ elders’ health information and their health status is divided into four categories: healthy, basically healthy, unhealthy but able to perform activities of daily living, and unhealthy but unable to perform activities of daily living. It is reported by the respondents themselves based on their own judgment. Table IV shows the results. If we combine the two categories of “healthy” and “basically healthy” as generally healthy, the percentage for men is 85.12 percent and 81.28 percent for women. As to the unhealthy conditions, the percentage of women is a little bit higher than that of men. To sum up, men enjoy better health condition compared to women.

Table IV gives a general description of the health status rated by the 60+ elders themselves. This census data also provide information about health status of the elders by different age groups. Next we will compare the differences of two genders across nine age groups. As to the 60-79 elders, the percentage for men who regard themselves healthy is higher than that of women. Concerning the “basically healthy” condition, the percentage of women is little higher than that of men. As to “unhealthy” status of the latter two, we can find that the percentage of women succeeds that of men. With regard to the 80+ oldest old, the percentage of “healthy” and “basically healthy” men is a little bit higher than that of women.

<table>
<thead>
<tr>
<th>Health status of elders by gender</th>
<th>Men (%)</th>
<th>Women (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy</td>
<td>48.22</td>
<td>39.64</td>
</tr>
<tr>
<td>Basically healthy</td>
<td>36.90</td>
<td>41.64</td>
</tr>
<tr>
<td>Unhealthy but able to perform activities of daily living</td>
<td>12.37</td>
<td>15.36</td>
</tr>
<tr>
<td>Unable to perform activities of daily living</td>
<td>2.52</td>
<td>3.35</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**Source:** the 2010 Population Census Data by National Bureau of Statistics
For the “unhealthy but able to perform activities of daily living” category, the two are almost the same, with women’s percentage being little higher. In the case of “unable to perform activities of daily living”, the percentage of women is in excess of that of men. Thus, men’s health status is a little bit better compared to women in a whole sense.

Tables IV and V illustrate the difference of self-rated health status between genders. This corresponds to the findings of previous research using sample data and showed that women’s physical and mental health status was worse than that of men, with medical expenditure also being lower (Liu and Zeng, 2001). From the perspective of social economic status, health disparity may partially depend on individual’s unequal position within the social hierarchy (Xu and Li, 2014). Studies in several countries have proved that people’s social economic status has stable and continuous relationship with their health, and it is also the case with the elders (Goldman, 2006). Those who are located at the upper level of social economic hierarchy have obvious advantages in terms of working environment, medical care opportunities, and risk exposure, which can exert protection on their health (Dahl, 1996). Previous studies showed income as an important factor affecting the elders’ psychological health. As their income increases, their self-rated health becomes better (Verbrugge, 1976), whereas poverty is related to ill health (Kawachi and Kennedy, 2001).

To some extent, wealth is health by providing people access to several economic resources, medical care and quality of life options such as nutritious food, safe neighborhoods, and reliable transportation (Stone and Howell, 2008).

For the elders, having an independent source of income can enable them to get access to medical care and services in need and remain discretionary about their income. In contrast, the economically dependent elders will rely on their children’s support to live and cannot decide how to spend money on their own will, imposing them in a passive position. The lack of autonomy and stress posed by the attachment relationship will affect the elders’ psychological well-being. Next we compare the percentage of different sources of daily living of the 60+ elders by gender and rural/urban division to see which group is more economically disadvantaged. Results are shown in Table VI.

<table>
<thead>
<tr>
<th>Total</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Healthy (%)</td>
<td></td>
<td></td>
<td>Basically healthy (%)</td>
<td></td>
</tr>
<tr>
<td>60-64</td>
<td>60.77</td>
<td>64.70</td>
<td>56.76</td>
<td>32.35</td>
<td>29.05</td>
</tr>
<tr>
<td>65-69</td>
<td>48.36</td>
<td>52.79</td>
<td>43.89</td>
<td>39.76</td>
<td>36.45</td>
</tr>
<tr>
<td>70-74</td>
<td>35.24</td>
<td>38.72</td>
<td>31.84</td>
<td>45.25</td>
<td>43.25</td>
</tr>
<tr>
<td>75-79</td>
<td>27.85</td>
<td>30.73</td>
<td>25.30</td>
<td>45.82</td>
<td>44.90</td>
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<td>12.68</td>
<td>17.05</td>
<td>11.12</td>
<td>30.78</td>
<td>29.85</td>
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<tr>
<td>65-69</td>
<td>10.37</td>
<td>9.29</td>
<td>11.45</td>
<td>1.51</td>
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<td>70-74</td>
<td>16.84</td>
<td>15.46</td>
<td>18.19</td>
<td>2.67</td>
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<td>75-79</td>
<td>22.00</td>
<td>20.36</td>
<td>23.45</td>
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<td>80-84</td>
<td>28.46</td>
<td>26.52</td>
<td>29.98</td>
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<td>27.35</td>
<td>30.20</td>
<td>28.45</td>
<td>29.19</td>
</tr>
</tbody>
</table>

**Source:** The 2010 Population Census Data by National Bureau of Statistics

**Table V.**

Health status of 60+ elders by gender and age group
Across the urban/rural division, the top three sources are labor income, pension for the retired, and support from other family members. In urban areas, nearly 75 percent men and 60 percent women regard pension as their main source. In town, men’s main source comes from labor income and pension, while nearly 60 percent women rely on family members’ support. When it comes to the rural areas, half men have labor income as the main source, which is in contrast to the situation that 60 percent women depend on the support from family members. The percentage of support from other family members for women is almost two times than that of men across urban/rural division. In addition, the percentage of family members’ support for town and rural women is double that of urban women. Nearly two thirds of women in town and rural areas get their resource of daily living from others’ support. Overall women are more likely to be economically dependent on support from other family members. This corresponds to another representative national study illustrating oldest old women in China are more likely to be economically dependent, much less likely to have pensions, and thus more likely to depend on family members for support or care than their male counterparts (Zeng et al., 2003).

As to the urban/rural division, town and rural women are more likely to rely on family members’ support for daily living. Given the fact that the old women lack resources to interchange with their children and family members, this economically dependent relationship will put them in a disadvantaged position, making their needs harder to be satisfied. As shown in a previous study, the insufficient income and disadvantageous economic status will adversely impact older women’s health (Jiang and Yang, 2009). For women living in town and rural areas, double disadvantages are facing them, with one being the gender disadvantage and the other being rural/urban difference. The high percentage of support from family members and lack of independent financial resource may possibly pose them in a passive and inferior status in family, and even influence their health if their basic needs cannot be fulfilled. This finding is consistent with previous research showing that for the menopausal and senile women, they are confronted with the problems such as higher morbidity, depression during menopause, lack of health knowledge, and insufficient medical treatment. What is particularly outstanding is the shortage of medical service for the rural, poverty-stricken women and urban old women with low income (Dai et al., 2004; Li et al., 2004; Wang and Liu, 2012). Because of their payment incapacity, the elders who already suffer from cognitive impairment or chronic diseases may experience faster disease progression and face higher risk of mortality due to the lack of necessary medical treatment and care. In addition, the fact that older women who are more inclined to depend on family-based support is built on the notion of "Confucian principle of filial piety", claiming that "the younger generation of adult children is expected to care for the elderly parents" (Thompson, 2010). However, this traditional family system of older care is being challenged nowadays (Gu et al., 2007). The erosion of traditional respect for elders because

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
<th>Urban</th>
<th>Men</th>
<th>Women</th>
<th>Town</th>
<th>Men</th>
<th>Women</th>
<th>Rural</th>
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<tr>
<td>Labor income</td>
<td>36.59</td>
<td>21.92</td>
<td>9.72</td>
<td>3.75</td>
<td>29.23</td>
<td>15.71</td>
<td>50.53</td>
<td>32.14</td>
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<tr>
<td>Pension for the retired</td>
<td>28.89</td>
<td>19.58</td>
<td>74.21</td>
<td>58.99</td>
<td>35.24</td>
<td>17.85</td>
<td>7.19</td>
<td>2.09</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Minimum living allowance (dibao)</td>
<td>4.11</td>
<td>3.69</td>
<td>1.76</td>
<td>2.87</td>
<td>4.10</td>
<td>4.39</td>
<td>5.14</td>
<td>3.85</td>
<td></td>
<td></td>
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<tr>
<td>Income from property</td>
<td>0.41</td>
<td>0.33</td>
<td>0.75</td>
<td>0.62</td>
<td>0.58</td>
<td>0.43</td>
<td>0.21</td>
<td>0.16</td>
<td></td>
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<tr>
<td>Support from other family members</td>
<td>28.24</td>
<td>25.39</td>
<td>12.13</td>
<td>31.95</td>
<td>28.74</td>
<td>29.40</td>
<td>35.13</td>
<td>39.93</td>
<td></td>
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<tr>
<td>Others</td>
<td>1.76</td>
<td>1.90</td>
<td>1.44</td>
<td>1.83</td>
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<td>2.23</td>
<td>1.79</td>
<td>1.83</td>
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<tr>
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<td>100</td>
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</tbody>
</table>

**Table VI.**
The main source of daily living of 60+ elders by gender and urban/rural division (%)
of newfound economic power of young adults is one of the important social changes, which will affect the elders’ health (Li et al., 2005). The media has ever reported that in some cases rural children refuse their responsibility to take care of their parents in rotation, leaving them “abandoned” in terrible condition because they regard financial incapacity and physical weakness as “uselessness”. Therefore, the gradually fading family-care tradition will exert a more adverse influence on the elderly women who are economically dependent. In this sense, the main source of daily living, as an indicator of economic independence and financial autonomy for the elders, gives rise to discrepancy in health outcomes between gender and across urban/rural division.

Health status differed by gender reflected the subjective judgment by the elders and the difference in the main source of daily living is discussed as a possible mechanism. Leading both physically and mentally healthy life is of equal importance for the realization of successful aging. This calls for research into gendered patterns of other health indicators such as cognitive ability or impairment which acts as the long-term effects of different environmental, economic, and cultural factors and their interaction. Chinese women have traditionally lived in a patriarchal, patrilineal, and patrilocal society in which they were structurally and systematically denied early-life education access, higher mentally stimulating occupations during adult life, and a large social network – all of which are associated with later cognitive function development and maintenance (National Research Council, 2000). Previous studies have identified gender discrepancy in terms of cognitive function (Downing et al., 2008; Zeng et al., 2003; Zhang, 2010). For example, one study (Zhang, 2006) found that among the oldest old in China, women are much more vulnerable than men to suffer from cognitive impairment due to their lifetime disadvantages in SES. It is consistent with another study (Lei et al., 2013) using CHARLS data in China. In addition, the prevalence of Alzheimer’s disease and dementia in China is also significantly differed by gender. A systematic review and analysis (Chan et al., 2013) of China found that the prevalence of Alzheimer’s disease in women vs men is 2.37 (95% CI 1.90–2.96). The prevalence of dementia in women vs. men is 1.65 (95% CI 1.51–1.81). Therefore, elder women are not only more easily trapped in financial disadvantagement, they also face more risks in terms of cognitive impairment and the subsequent dementia, resulting in their inferior health outcome.

4. Conclusion and discussion
Gender is one dimension which warrants a closer look in cultural settings such as China. Significant differences in gender roles, opportunities, and obligations have long shaped and conditioned the experiences of men and women throughout their life course. Traditionally inferior socioeconomic positions in combination with the lack of access to medical care and treatment placed women in a disadvantageous health condition. Because of the improvement in technology, and popularization of health facilities and service, women’s health has undergone tremendous progress in the past few decades which are marked by an increase in hospitalized delivery rate and a great decline in MMR. However, the fact that the discrepancy in health outcomes is caused by several agents cannot be neglected. In this paper the disparity in health care service and unhealthy working environment are discussed between different regions and rural-urban division.

As to the hazardous working environment exposure, our paper found that women in less developed areas have higher percentage of exposure to the detrimental factors, which can result in a cumulative adverse impact on their physical and mental health, leading to the health disparities in older ages.

The health care services, such as prenatal examination and gynecological examination, are of great importance to the health of a newborn baby and women’s health over life span. A great difference still exists between rural and urban areas primarily due to the lack of
health consciousness and maternal health facilities. These inequalities in health care services may translate to poor and disparate reproductive outcomes (Hall et al., 2012). In light of the rural-urban gap, future work should be focused on strengthening and accessibility of basic maternal and child health services, improving the systematic management of pregnant women and service quality, optimization of health resources allocation, increasing funding in rural and remote areas, and making access to maternal and child health services more equal.

Gender inequality is one important aspect concerning women’s health. Though women have longer life expectancy compared to men, they are more likely to suffer frailty symptoms and have longer morbidity period. The census data show that for the 60+ elders, men have better health compared to women. In addition, the main source of daily living for the elders reflects the big economic status differed by gender and across urban/rural divisions. Elder women, especially rural-living women, are more inclined to depend on others for daily living. The absence of an independent financial source may lead to the passive position and lack of economic autonomy, affecting their physical and psychological well-being. In this sense, the popularization and total cover of the allowance, and health care targeting the disadvantaged group, is extremely urgent. Also, the gendered pattern of health differences exists in terms of self-rated health, cognitive function, and the prevalence of Alzheimer’s disease and dementia. This difference can be partially explained by the women’s cumulative disadvantages of denial of early schooling or early drop-off, lacking mentally demanding high skilled jobs in adult life, and restricted social networks which are important for the development of cognitive function. This study bears important implications for future public policy. In light of the unprecedented aging process and the consequent care burden, interventions such as the equalization of education opportunities (especially in poverty-stricken areas and undeveloped areas) in order to dismiss the adverse impact of childhood adversity, mid-life more high-skilled and mentally stimulating occupations, and cognitive engagement in activities in elder life are in urgent need.

Notes
3. Maternal mortality ratio (MMR) is defined as the number of maternal deaths per 100,000 live births (www.who.int/reproductivehealth/publications/monitoring/maternal-mortality-2015/en/).
4. Commission to Build a Healthier America, RWJF.
6. www.worldlifeexpectancy.com/china-life-expectancy

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**Further reading**


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Patterns of living arrangements of the elderly in mainland China

Changes, consequences and policy implications

Jiehua Lu and Yun Zhang
Department of Sociology, Peking University, Beijing, China

Abstract

Purpose – The purpose of this paper is to examine the changes and consequences of the patterns of Chinese elderly population’s living arrangements. It contains information that can be considered for future policy making for the elderly and to gain a better understanding of the social transition in China.

Design/methodology/approach – Based on the analysis of the population census data in 2000 and 2010, the authors examined the changes and trends of the living arrangements of the elderly Chinese population. Furthermore, the authors analyzed factors influencing the Chinese elderly’s living arrangements according to the data acquired from the Chinese Longitudinal Healthy Longevity Survey.

Findings – First, the proportion of the elderly people living with children has been decreasing. Second, the proportions of elderly people “living alone” and “living with spouse independently” has largely increased. Third, the changes and trends showed differences between urban and rural regions.

Originality/value – By looking at the characteristics among elderly people with different living arrangement patterns, those that are “living alone” are typically in disadvantaged conditions, and thus special attention should be paid with regards to related research and policies for the elderly who are “living alone.”

Keywords Elderly people, Living alone, Living arrangement, Living with children

Paper type Research paper

1. Introduction

1.1 An aging population and its implications

Since the 1990s, population aging has become a global concern, especially in European and East Asian countries. An inevitable global aging trend was documented on the beginning of World Population Aging 1950-2050 by the United Nations, pointing out that “For the near future, virtually all countries will face population aging, although at varying levels of intensity and in different time frames.” Population Division, DESA, United Nations (2002)

The consequences of population aging are profound. A direct effect in social condition is the change of household structures and patterns of living arrangements of the elderly people. However, changes in patterns of living arrangements reveal the revolution in the intergenerational relationship, which is always granted as a vital indicator for social transitions (Guo, 1994). Additionally, a considerable amount of literature has noticed the relationship between elderly’s living arrangements and their health conditions both physically and mentally (Lawton, 1984; Sarwari et al., 1998; Zunzunegui et al., 2001; Zimmer, 2005; Kaida et al., 2009; Jiao, 2014; Ren and Treiman, 2014). Finally, patterns of living arrangements could influence the estimation and projection of providing adequate old age support by the government (Hsiao, 1995; Grogan, 1995; Wang et al., 2005).

1.2 A trend of living arrangements’ transition of the Chinese elderly

The rapid aging wave in China conforms to the world’s trend. Nevertheless, China, having the largest population, is facing a more complicated situation than any other countries; thus a dramatic amount of aging population. Additionally, a bottom-low fertility rate brings a consequence that parents have fewer children to share coresidence with (Bian et al., 1998;...
Family values, affected by modernity, also lead to different choices of coresidence modes different from the traditional living arrangement types (Joseph and Phillips, 1999; Logan and Bian, 1999). Consequently, all these factors combined with a soaring amount of older people would cause revolutions of the patterns of living arrangement of Chinese elderly (Yang and He, 2014). In order to be prepared for policy making of the future elderly and to have a better understanding of social transition in China, inspections and reflections of the changes and consequences of the patterns of the Chinese elderly’s living arrangements are very important to collect.

2. Literature review

2.1 Reforms of the Chinese elderly’s living arrangements

Some studies have suggested that the Chinese, familialistic cultural value holding ethnic groups, are more likely to live with family members other than their individualistic counterparts, such as British, German, and Dutch. However, in the 1990s, researches started to suggest the declining of elderly people living with adult children in some cities of China and forecasted a great declining proportion of parents living with their adult children in the future due to the single-child family policy (Logan et al., 1998). Studies on China’s single-child generations showed differences in family living arrangements compared to non-single-child families. Mainly, it indicates that the dominant pattern of single-child families was living separately from parents, while the pattern of non-single-child families was more likely to live with their parents (Chen, 1985; Feng, 2006; Xu, 2013; Yuan and Mu, 2014). In fact, Chinese census data helped researchers verify the dynamics and changes of Chinese elderly’s living arrangements. Comparisons made from the latest three censuses, which took place in 1990, 2000 and 2010, respectively, could be attributed to three main results. First of all, the one-person and one-couple-only households have increased significantly; the average household size dropped quickly, and the proportion of people living with their adult children declined (Zeng and Wang, 2003; Sun, 2013; Hu and Peng, 2014). Second, the proportion of nuclear family households (two-generation households) decreased while the proportion of stem family households (three-generation households) increased. Nevertheless, studies also suggested that the reasons are due to demographic effects; thus this did not equal to a backward to the traditional family pattern (Zeng and Wang, 2003; Wang, 2006; Guo, 2008). Lastly, regional and urban and rural differences were proved to be significant in household sizes and living arrangement patterns in China (Guo, 2002, 2008; Wang, 2014; Zhang, 2015).

2.2 Potential consequences and policy implications

From the discussions above, we may have a further perspective of the dilemma of the Chinese elderly’s living arrangements in the future. As a growing amount of old people living separately with their adult children in the future, there will be an increasing number of solitude living elderly people (Zhang, 2013). The health and long-term care industries, as well as modern types of elderly people’s residential modes, such as institutionalized residing and community residing, are proposed to play an efficient role in the future (Gu et al., 2007). Nevertheless, the home-based care for elderly people is still dominant and prevalent, and thus the accurate projections of home-based care needs and costs are vital and urgent. Zeng et al. (2013, 2015) have offered great efforts and achievements on the estimations and projections. Researchers have also suggested that governments should develop appropriate policies to meet the future challenges (Leung, 1997; Zhang and Goza, 2006). In fact, a range of factors, age, gender, marital status, economic status, and health conditions, have been considered to have significant effect on shaping the patterns of elderly people’s living arrangement (Guo, 2002; Lu et al., 2008; Lai, 2008; Kaida et al., 2009; Nguyen and Shibusawa, 2013; Zhang, 2015). As a consequence,
the characteristic of elderly people among different living arrangements are different. It is essential to know the specific characteristics of them since the policies are supposed to be carried out for the solitude living elderly people.

3. Data and method

This study is based on two sets of data; one is the population-level data based on China’s censuses, the other is an individual-level data based on social survey. We use the census data to evaluate the patterns and trends of living arrangements among the Chinese elders while using the survey data to study personal characters among different living arrangement patterns. This strategy is designed specifically for our research. On one hand, we want to observe changes in the trend of elderly people’s living arrangement in China, which is the fundamental purpose of this study; on the other hand, we would like to understand the personal characteristics of different living arrangements of elderly people, because it would show the consequences of the pattern of living arrangement, as well as the prerequisites for further policy making.

3.1 Use of census data

Analyses of patterns and trends are mainly based on the fifth National Census Data and the sixth National Census Data. The censuses were conducted by the government of China in 2000 and 2010, respectively, while the data set was released by the National Bureau of Statistics of China. The form of released data is aggregate data, which contains the aggregated number of population and households among urban/town/rural areas, as well as among administrative divisions. It reports the total of 340,491,197 households in 2000, and the number has grown into the total of 401,934,196 in 2010[1]. Additionally, it also has calculations on the aggregated number of the household for different types of living arrangement. The census data highlights the overall figure of Chinese elderly’s living arrangements. With the comparison between the census of 2000 and 2010, we are able to understand the trend of Chinese elderly’s living arrangement within the next ten years.

3.2 Use of survey data

Analyses of personal characteristics are based on the 2011-2012 wave of the Chinese Longitudinal Healthy Longevity Survey (CLHLS). The CLHLS covers 23 out of 31 provinces representing 85 percent population in Mainland China[2]. There is a total of 9,765 respondents in the 2011-2012 wave of CLHLS. This survey data contains various factors describing the nature of individuals. In order to understand the personal characters among different living arrangement patterns, we divide all respondents into three main groups, which are respectively the “elderly people living alone,” “elderly people living with spouse,” and “elderly people living with family members.” Additionally, in the group of the “elderly people living with family members,” we have excluded with the situation that those live with spouses only; thus these three groups would not overlap with each other. With the comparison among these groups, we will understand the individual differences in each living arrangement patterns of the Chinese elderlies.

4. Patterns and trends of living arrangements among the Chinese elderly: 2000-2010

4.1 Dynamic changes of living arrangements of the Chinese elderly

Substantial changes in the elderly people’s living arrangement have been observed in China during the period of 2000-2010. The change mainly contains two aspects, one is that the size and structure of household have shrunk, and the other is that the trend of elderly people’s living arrangement has reformed.
4.1.1 Household size and structure. Significant changes of household and intergenerational relationships can be observed through the national census data in 2000 and 2010. Both the size and structure of household in China have shrunk in the last decade. The average household size of China was 3.46 persons per family in 2000, while it declined to 3.09 persons per family in 2010. In spite of the increasing total number of households, the proportion of the two-generation households has decreased by 11.49 percent, and the proportion of the three-generation households has also decreased from 18.24 to 17.31 percent. This suggests the one-generation households, which excluded the possibility of living with neither parents nor children, have increased from 21.70 to 34.78 percent (see Figure 1).

4.1.2 Elderly people within household. By viewing the proportions of households with aged 65 and above in 2000 and 2010, we could have a clear perspective on the changes in the patterns of the Chinese elderly people’s living arrangements (see Table I). Due to the number of old people per household, households with people 65 and above are divided into three types, which are with one, two, and three 65 and above elderly people per household, respectively. The proportion of one elderly people household accounting for 72.5 and 67.55 percent in 2000 and 2010 respectively is the largest among these three types, as much as over two times of the proportion of household with two older persons. Patterns of the living arrangements of elderly people are based on various selections of

![Figure 1. Generation structures within households in 2000 and 2010](source: 2000 and 2010 census data)

<table>
<thead>
<tr>
<th></th>
<th>2000 (%)</th>
<th>2010 (%)</th>
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<tbody>
<tr>
<td>Subtotal of one 65 and above elderly people households</td>
<td>72.56</td>
<td>67.55</td>
</tr>
<tr>
<td>Alone</td>
<td>11.46</td>
<td>16.40</td>
</tr>
<tr>
<td>Alone with juvenile relatives</td>
<td>1.16</td>
<td>0.98</td>
</tr>
<tr>
<td>With adult relatives</td>
<td>59.95</td>
<td>50.16</td>
</tr>
<tr>
<td>Subtotal of two 65 and above elderly people households</td>
<td>27.10</td>
<td>32.07</td>
</tr>
<tr>
<td>With a spouse</td>
<td>11.38</td>
<td>15.37</td>
</tr>
<tr>
<td>With spouse and juvenile relatives</td>
<td>1.06</td>
<td>0.88</td>
</tr>
<tr>
<td>With spouse and adult relatives</td>
<td>14.66</td>
<td>15.82</td>
</tr>
<tr>
<td>Subtotal of three 65 and above elderly people households</td>
<td>0.34</td>
<td>0.38</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

*Source: 2000 and 2010 census data*
living with relatives. The most popular pattern is the single old person living with adult relatives, which occupies the proportion above 50 percent of households with aged 65 and above old persons, both in 2000 and 2010. The other two patterns with comparably large proportions are “live alone” and “live with spouse and adult relatives.” However, these two household patterns have changed their rankings from 2000 to 2010. From the above and the table, we could see the main stream of the elderly people’s living arrangements is still coresidence with adult relatives. Living independently with a spouse or alone is also popular among the elderly people. But only a few households are cross-generational.

4.1.3 Changes of living arrangement patterns between 2000 and 2010. The number of households with age 65 and above elderly people has gone up from 2000 to 2010. Nevertheless, the change of patterns of elderly people’s living arrangements differs (see Figure 2). The proportion of “one elderly people living with adult relatives” has shrunk around 10 percent from 2000 to 2010, although it still remains the highest in proportion and amount. The proportion of three patterns that “living alone,” “living with spouse,” “living with spouse and adult relatives” have all increased significantly. Nevertheless, the growing speed of “living alone” households has soared and surpassed the increasing speed of the others; thus took place of the pattern of “living with spouse and adult relatives,” ranking the second largest proportion of 2010. The proportions of “living with spouse” and “living with spouse and adult relatives” are close and similar in 2010. However, when compared to the increasing speed and amount in 2000, “living with spouse” surpassed. Lastly, proportion and amount of “elderly people living with juvenile relatives” households remain low, and changes during ten years are not significant comparable. In conclusion, changes and trends in the patterns of elderly people’s living arrangements mainly suggest three aspects. First of all, the proportion of “living with adult relatives” remains the largest proportion, but with a declining trend. Second, proportion and number of “living alone” have soared in ten years; thus becoming the second largest proportion in 2010. Finally, the increasing speed of “living with spouse” has been significant, which may indicate the trend to be dominant in the patterns of living arrangements in future.

![Figure 2. Changes and trends in patterns of elderly people’s living arrangements from 2000 to 2010](source: 2000 and 2010 census data)
4.2 Urban and rural patterns of the living arrangements of the Chinese elderly

Unlike the developed countries, the gap of modernization between urban and rural is prevalently large in China, which naturally brings a series results of the divide in social customs and conventions. Regarding of this situation, it is necessary to discuss Chinese elderly's living arrangements under the context of urban and rural regions.

4.2.1 Urban and rural differences. Urban and rural differences are often considered to be a determinant affecting the elderly people's living arrangements in China, which reveals the impacts of both urbanization and modernization (Goode, 1964). As observed in the past census data, patterns of the elderly people's living arrangements are different among urban, town and rural (see Table II). First of all, rural regions held a larger proportion of “one elderly people households” than that of urban regions, while the proportion of “two elderly people households” in urban regions was bigger than that in rural regions. Second, the proportion of “with adult relatives” households in rural was larger than that in urban. Third, the households with spouses had larger proportion in urban regions than in rural regions. Additionally, for all the cases above, the conditions of town were between urban and rural regions.

4.2.2 Changes of urban and rural differences from 2000 to 2010. The decrease of “living alone with adult relatives” pattern and the increase of “living with spouse” pattern are both significant and changing with similar pace in all three regions within the ten-year period. Nevertheless, the other two patterns that “with spouse and adult relatives” and “living alone” suggest different changes among urban, town and rural from 2000 to 2010. Firstly, the growing speed of “living with spouse and adult relatives” in both urban regions and towns surpasses that in rural regions. Thus in 2010, the proportion of “living with spouse and adult relatives” in urban regions is larger than that in rural regions, reversing the condition of 2000. On the other hand, the proportion of “living alone” in rural regions has largely increased compared with that in urban regions and towns. This shows not only a growing amount of “living alone” elderly people but also points out a large proportion of “living alone” elderly people in rural regions. However, social security and pension security in rural regions are always insufficient; thus these “living alone” elderly people might suffer from a poor living condition with less or without family’s support. In order to make a change regarding this situation, related policies should be raised up to help rural elderly people who live alone (Figure 3).

5. Personal characteristics among different patterns of living arrangements

Living arrangements of elderly people are considered to have interactions with a series of personal characters, such as marital status (Lawton et al., 1984), gender (Nguyen and

<table>
<thead>
<tr>
<th></th>
<th>Urban 2000 (%)</th>
<th>Rural 2010 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One elderly people households</td>
<td>69.64 72.45 73.51</td>
<td>63.08 67.80 69.43</td>
</tr>
<tr>
<td>Alone</td>
<td>12.90 13.23 10.70</td>
<td>16.56 17.25 16.07</td>
</tr>
<tr>
<td>Alone with juvenile relatives</td>
<td>1.14 1.20 1.15</td>
<td>0.40 0.95 1.25</td>
</tr>
<tr>
<td>With adult relatives</td>
<td>55.60 58.01 61.65</td>
<td>46.11 49.59 52.11</td>
</tr>
<tr>
<td>Two elderly people households</td>
<td>30.01 27.20 26.15</td>
<td>36.58 31.80 30.18</td>
</tr>
<tr>
<td>With spouse</td>
<td>14.03 12.89 10.28</td>
<td>19.09 16.06 13.53</td>
</tr>
<tr>
<td>With spouse and juvenile relatives</td>
<td>1.37 1.14 0.94</td>
<td>0.35 0.81 1.05</td>
</tr>
<tr>
<td>With spouse and adult relatives</td>
<td>14.61 13.17 14.93</td>
<td>16.94 14.94 15.60</td>
</tr>
<tr>
<td>Three elderly people households</td>
<td>0.35 0.35 0.34</td>
<td>0.35 0.40 0.39</td>
</tr>
</tbody>
</table>

Source: 2000 and 2010 census data
Shibusawa, 2013), socio-economical status (Li, 2015), health condition (Li et al., 2009), intergenerational relationships (Crimmins and Ingegneri, 1990; Treas and Chen, 2000) and so on. Based on what have been discussed above, we mainly divide living arrangements into three patterns, which are the single elderly person, elderly people living with spouse, and elderly people living with at least one family member (except for the situation only with a spouse). As a consequence, among the three patterns of living arrangement, the personal characters of elderly people are naturally different.

In order to analyze the differences of personal character among elderly people’s living arrangement, we will examine four aspects of personal characters, respectively, namely, demographic characters, social-economical status, health condition, and intergenerational relationships in comparison with the three patterns. To be specific, each aspect is presented by a range of indicators. Figure 4 illustrates the contents of personal character among different patterns of the elderly people’s living arrangement.

5.1 Demographic characteristics
We have examined average age, gender, and marital status of elderly people among three patterns of living arrangements. First, the average age of elderly people living with family is the highest among the three groups, while the elderly people living with a spouse has the

![Graph showing living arrangements](image)

**Figure 3.** Comparisons of patterns of households by urban, town and rural regions in 2000 and 2010

**Figure 4.** Personal characters among different patterns of elderly people’s living arrangement
lowest average age. The gap between two categories was almost ten years. The findings showed that oldest-old people tended to live with family members rather than living independently. It is reasonable since the oldest-old people belonged to the earliest cohort, and thus they would perceive much more traditional family values which insisted on staying with families. Furthermore, their physical conditions also limit them to live independently, since most of them are disabled and in need of help from others. Second, gender compositions between the living alone elderly people and living with family elderly people were quite similar, which illustrated that female’s portion was larger than that of males. On the contrary, the situation of the elderly people living with a spouse was the opposite with male’s proportion two times more than that of female. This was ascribed to the disparity in life expectancy between men and women. Since men’s life expectancy is lower, women are more likely than men to lose a spouse before death. Widows are also far less likely than widowers to remarry because of the death of opposite sex peers (Carr and Bodnar-Deren, 2009). Finally, both the living alone and living with family elderly people had a high rate of widowhood in marital status, and the former’s was higher. Other reasons such as being divorced or never getting married were not significant. In sum, by viewing the demographic determinants, we discovered that the elderly people living alone were similar to those living with family, which was with higher average age, female proportion, and widowhood rate (see Table III).

5.2 Economic status
Among the three patterns of living arrangements, the self-rated economic status of living alone elderly people was the lowest. The proportion of the “Poor” and the “Very poor” together accounted for 21.3 percent of the living alone elderly people, while the proportions were 13.58 and 14.29 percent of the elderly living with spouses and living with family, respectively. As for the main sources of financial support, the top three main sources for the elderly people were children, retirement pensions, and supports from local governments or communities. However, the proportions of these sources varied among the three groups of the elderly people. The elderly people living with family relied mostly on their children’s economic supports, while the elderly people living with spouses independently depended least on their children’s economic supports. In addition, the elderly people living with spouses independently had the largest proportion of economic support by pensions and wages as well. Meanwhile, among the three groups, the elderly people living alone had a comparably large proportion of economical dependence on local governments or communities (see Table IV). Thus, among the three groups, the living alone elderly

<table>
<thead>
<tr>
<th>Demographic characters of the elderly people among three living arrangement patterns</th>
<th>Live alone</th>
<th>Live with a spouse</th>
<th>Live with family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (average)</td>
<td>85.48</td>
<td>78.38</td>
<td>87.92</td>
</tr>
<tr>
<td>Gender (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>39.48</td>
<td>67.29</td>
<td>39.79</td>
</tr>
<tr>
<td>Female</td>
<td>60.52</td>
<td>32.71</td>
<td>60.21</td>
</tr>
<tr>
<td>Current marital status (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currently married and living with a spouse</td>
<td>7.22</td>
<td>99.06</td>
<td>25.84</td>
</tr>
<tr>
<td>Married but not living with a spouse</td>
<td>3.33</td>
<td>–</td>
<td>1.71</td>
</tr>
<tr>
<td>Divorced</td>
<td>0.49</td>
<td>–</td>
<td>0.20</td>
</tr>
<tr>
<td>Widowed</td>
<td>86.30</td>
<td>–</td>
<td>71.72</td>
</tr>
<tr>
<td>Never married</td>
<td>2.59</td>
<td>–</td>
<td>0.51</td>
</tr>
</tbody>
</table>

Source: CLHLS (2011)
people’s economic status was the lowest since they had the largest proportion in poor self-rated economic status, and also demanded more economic support from the local governments and communities.

5.3 Health conditions

Three indicators were selected to evaluate the health condition of the elderly people, which were self-reported heath, physical self-maintenance scale (PSMS) scores, and instrumental activity of daily living (IADL) scores. The range of PSMS score was 6-18, while the IADL score’s range was 8-24. Self-reported heath more or less represented subjective health conditions. PSMS and IADL were objective health evaluations. For subjective health conditions, when calculating the proportion of reported “bad” and “very bad” conditions together, the elderly people living alone possessed a larger portion than the other two groups. Meanwhile, the elderly people living with their spouses reported the largest proportion of “very good” and “good” health conditions among the three groups. However, when comparing the average scores of objective health conditions of PSMS and IADL, the group of elderly people living with spouse tended to be the lowest among the three, while elderly people living with family evaluated the best of objective health conditions (see Table V). To conclude the discussions above, the elderly people living alone had the worst self-reported health, while the elderly people living with their spouses

<table>
<thead>
<tr>
<th>Patterns of living arrangements</th>
<th>Live alone</th>
<th>Live with spouse</th>
<th>Live with family</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self-rated economic status (%)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very rich</td>
<td>0.92</td>
<td>1.35</td>
<td>1.39</td>
</tr>
<tr>
<td>Rich</td>
<td>11.04</td>
<td>17.48</td>
<td>16.57</td>
</tr>
<tr>
<td>So-so</td>
<td>66.21</td>
<td>67.22</td>
<td>66.94</td>
</tr>
<tr>
<td>Poor</td>
<td>16.21</td>
<td>11.50</td>
<td>11.89</td>
</tr>
<tr>
<td>Very poor</td>
<td>4.99</td>
<td>2.98</td>
<td>2.40</td>
</tr>
<tr>
<td><strong>Main sources of economic support (%)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retirement pensions</td>
<td>12.34</td>
<td>28.70</td>
<td>16.01</td>
</tr>
<tr>
<td>Spouse</td>
<td>0.99</td>
<td>7.03</td>
<td>1.82</td>
</tr>
<tr>
<td>Children</td>
<td>57.25</td>
<td>33.85</td>
<td>61.49</td>
</tr>
<tr>
<td>Grandchildren</td>
<td>2.28</td>
<td>0.42</td>
<td>4.39</td>
</tr>
<tr>
<td>Other relatives</td>
<td>0.56</td>
<td>0.16</td>
<td>0.44</td>
</tr>
<tr>
<td>Local government or community</td>
<td>12.34</td>
<td>5.00</td>
<td>5.57</td>
</tr>
<tr>
<td>Work by self</td>
<td>9.44</td>
<td>20.36</td>
<td>6.68</td>
</tr>
<tr>
<td>Others</td>
<td>4.63</td>
<td>4.48</td>
<td>3.56</td>
</tr>
</tbody>
</table>

Source: CLHLS (2011)

<table>
<thead>
<tr>
<th>Table IV. Economic status of the elderly people among the three living arrangement patterns</th>
</tr>
</thead>
</table>

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<tr>
<th>Table V. Health conditions of the elderly people among the three living arrangement patterns</th>
</tr>
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<table>
<thead>
<tr>
<th>Live alone</th>
<th>Live with spouse</th>
<th>Live with family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-reported heath (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very good</td>
<td>8.98</td>
<td>10.07</td>
</tr>
<tr>
<td>Good</td>
<td>32.06</td>
<td>35.41</td>
</tr>
<tr>
<td>So-so</td>
<td>37.42</td>
<td>36.60</td>
</tr>
<tr>
<td>Bad</td>
<td>16.12</td>
<td>15.58</td>
</tr>
<tr>
<td>Very bad</td>
<td>1.65</td>
<td>0.88</td>
</tr>
<tr>
<td>PSMS (average)</td>
<td>6.54</td>
<td>6.49</td>
</tr>
<tr>
<td>IADL (average)</td>
<td>12.07</td>
<td>10.73</td>
</tr>
</tbody>
</table>

Source: CLHLS (2011)
had the best self-reported health in spite of the worst evaluation of the objective health, and the elderly people living with family members were evaluated the best in objective health of PSMS and IADL.

5.4 Intergenerational relationships
We also took inspections into the living willingness of the elderly in China and an average number of children alive among the three groups of the elderly people. For the living willingness of the elderly people living with families, up to 71.09 percent of them prefer the option of “live with children,” which is in accordance with their practical situations. Among the elderly people living with spouses independently, there were no significant contradictions between their willingness and realities of living arrangement either, since 53.89 percent of them approved the choice of “Living alone (or with spouses) and children living nearby.” However, there were only 21.15 percent of the elderly people living alone were willing to “live alone.” In addition, 23.03 percent of the living alone elderly people was willing to live with children, and 45.41 percent of them expected their children to live nearby. This suggests significant contradictions between the willingness and realities of living arrangement among the elderly people currently living alone. From the discussions above, we find out that the elderly people living with family had the largest proportion of the life they had expected in accordance with their desired living arrangement, while the elderly people living alone were least in accordance with their desired living arrangements. Furthermore, the average number of children alive of the elderly people living alone turned out to be the largest among the three groups, while those living with families were the least (see Table VI). This, to some degree, could be a retort of the perception of “rearing children for old age.”

6. Conclusions and discussions
6.1 Implications of changes and trends in the elderly people’s living arrangements
As we have discussed above, comparing the changes and trends in the patterns of the Chinese elderly people’s living arrangement between 2000 and 2010, we noticed that the proportions of the “single elderly person living with adult relatives” and the “single elderly person or an elderly couple living with juvenile relatives” have declined. Meanwhile, it also revealed an increasing trend of the proportion of patterns of the “elderly people living alone” and the “elderly people living with spouse.” In addition, the major trends illustrated differences between urban and rural regions suggesting that the increasing extent of the “elderly people living alone” in rural regions has surpassed that of urban regions, while “elderly people living with spouse” has increased faster in urban regions than in rural regions.

The implications are twofolds. On one hand, due to the larger proportion of the “elderly people living with adult relatives” in rural regions as compared with that in urban,
and the opposite situation of the “elderly people living with spouse,” the pattern of former is more urbanized than that of the latter. Consequently, in light of the process of urbanization in China, the amount of the “elderly people living with spouse” households will sprout in the coming future. On the other hand, the process of urbanization can also explain the phenomenon of the soaring of the “living alone” elderly people. Due to urbanization, a large amount of rural working-age laborers were attracted into towns and cities leaving elderly people behind in their hometowns. Concerning this, the elderly people who live alone in rural regions are different from those in urban regions; for the former are those usually without social insurances and lack of proper caring. Being the disadvantaged group of society, the elderly people who live alone in rural regions need to be more focused on when local governments make related social policies.

6.2 Disadvantaged conditions of the living alone elderly people

In the composition of the elderly people living alone, the female elderly accounted for over 60 percent proportionally. In total, 86 percent of the living alone elderly people are widowed, and their average age was comparatively older than the elderly people living with spouses. All these resulted in the disadvantaged conditions of economy and health. Infer from above, the proportions of the self-reported economic status in the “poor” and “very poor” accounted for the largest of the elderly people living alone among the three living arrangement patterns, and they are also in need of most economic support from the government or community. Besides, the living alone elderly people hold the largest proportion in the worst self-reported health conditions when compared with the other two groups. In addition, the elderly people living alone are also least satisfied with their current living arrangements. This provides us with directions for further studies. On the one hand, with the rapid development of modernization in China, the impacts of modernity and individualization will result in an increasing proportion of the living independently elderly people. On the other hand, the inequality of elderly people’s death hazard in gender leaves a larger proportion of the widowed female elderly people. In light of this, gender-oriented perspectives are expected to be introduced into researches of the living alone elderly people. Furthermore, related public policies, such as medical security and pension security, should be released to protect and benefit the disadvantaged elderly people living alone. Additionally, social communities can also play an active role in providing proper interventions for those elderly people who need help.

Notes

1. Data sources are accessible on the official website: www.stats.gov.cn/tjsj/pcsj

References


Further reading


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Living arrangements, coresidence preference, and mortality risk among older Taiwanese

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National Chung Cheng University, Chiayi, Taiwan, and
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Abstract
Purpose – Although coresidence with children when one becomes old is an ideal in Chinese society, the drastic socio-economic development in Taiwan has brought some fundamental changes to living arrangements of the elderly population. The purpose of this paper is to examine the relationship between family living arrangements and elderly health in Taiwan, given the secular trend of more elderly persons choosing to live with their spouse or to live independently.

Design/methodology/approach – The authors utilized panel data from the “1989 Survey of Health and Living Status of the Elderly in Taiwan” with follow-ups up to 2007 to examine how living arrangements of the elderly affect the risk of mortality using discrete-time hazard models. The authors stratified the analyses by the elderly’s preference to coreside with children, and examined whether the effects of living arrangement varied by age, controlling for sociodemographics, health status, health behaviors, and social relationships observed at the baseline.

Findings – The authors found that both the associations of living arrangements and coresidence preference with that mortality risk were largely weakened when controlling for other variables. Only among respondents expressing preference for coresidence were living arrangements associated with mortality risks, and these effects increased with age. For those who did not intend to live with children, the authors found no evidence suggesting living arrangements were associated with mortality risks. The dynamics of living arrangements among the elderly and elderly care policies in Taiwan are discussed for further research.

Originality/value – To the authors knowledge, no previous research has examined living arrangements and mortality risks with respect to coresidence preference.

Keywords Taiwan, Mortality, Living arrangements, Preference for coresidence with children

Paper type Research paper

Introduction
The living arrangements of Chinese society are different from those of the Western model, where the elderly choose co-residency with their children out of need, rather than out of preference (Mickus et al., 1997). Most of the elderly in Taiwan have children of their own and they continue to live with them, especially in their old age. The elderly in Taiwan are dependent on their children for support if they have no formal support from public sources. The chief exception is the cases of mainland soldiers who immigrated to Taiwan in 1949 who did not get married and therefore did not have a family for them to stay with (Chen, 1996). It is therefore of special interest to examine whether family integration (or the lack thereof) has any influence on the health status of the elderly who are over 65 years old.

Taiwan has undergone drastic changes due to explosive economic growth in recent decades. It only took Taiwan less than 50 years to complete the demographic transition, while it took many Western industrial nations more than 100 years to complete the demographic transition cycle from high to low mortality and fertility. This demographic transition in Taiwan has produced unprecedented growth in Taiwan’s elderly population. Such drastic socio-economic
developments have also brought some fundamental changes in living arrangements of the elderly since 1980s. The modernization and industrialization of Taiwan have not only brought forth a first-rate education system and equally distributed wealth, but also led to shrinking family sizes and increasing single dwelling households (Thornton et al., 1984). There has been a sharp increase of the elderly population who are living alone or with their spouse since the 1980s. In 1986, the proportion of elderly aged 65 and above who lived alone or with their spouse was only 25.5 percent, while 70.2 percent lived with their children (Directorate-General of Budget, Accounting and Statistics (DGBAS), 2006). In 2013, 60.8 percent of the elderly aged 65 and above still lived with their children, and 31.6 percent lived either alone or with a spouse only (Ministry of Health and Welfare, 2014).

The Chinese family is the basic tenet of social support for most Chinese on account of cultural norms and economic reasons. The question of which party is obligated to support the elderly of an aging society in the future motivates this worthwhile research effort. Although the increase in the number of the Elderly who live independently or with their spouse may have an adverse impact on Taiwan’s elderly due to Chinese traditional values on living arrangements, the magnitude of their effects on the health of the elderly remains unclear. Earlier research has documented that life satisfaction among the elderly was affected positively by living with family members, and especially by co-residing with their spouse and children (Chen, 1996, 1999). But the same data source also shows that those elderly who lived apart from their children had better social status and were happy with their living arrangement (Chen, 1996). Because living alone is not a cultural norm among the elderly in Taiwan, it is therefore interesting to find out whether and how family integration will affect elderly health status.

**Theoretical perspectives**

Traditionally, coresidence with adult children has been the main source of support for the elderly in many Asian cultures, and Taiwan is no exception. Previous studies have attempted to address the practice of the traditional coresidence model that still exists in Asia. First of all, a considerable body of literature has attributed the practice of coresidence of the elderly and their adult children to the influence and preservation of traditional values. Many scholars observe that the Chinese societies put a central emphasis on Confucian doctrine, in this case, Xiao, or filial piety, which can be translated into absolute love and respect for an individual’s parents and ancestors (Whyte, 2003; Thornton and Lin, 1994). Many studies also point out that the Chinese cultural patterns of living arrangements for the elderly have been rooted in the tradition of filial responsibility (Cowgill, 1986; Piovesana, 1979).

Noticeably, under the influence of Confucian doctrines, families in Chinese societies operate as a patrilocal and patrilineal system. In other words, parents tend to prefer living with a son, and it is his obligation to take care of his elderly parents. Such a tradition of living arrangement is usually accompanied by the practice of primogeniture, which sets the norm that the male first born should live with his parents after he gets married. Survey data from the 1990s show that for elderly people, living with sons remained prevalent, even if living with daughters became more desirable and more common (Chen, 2005; Chen et al., 2000; Whyte, 2003; Zhan and Montgomery, 2003). A study of Baoding, China, also documented that grown daughters are just as likely to provide support as grown sons are (Guo, 2000; Lavely and Ren, 1992; Zeng and Wang, 2003).

On the other hand, many previous studies have taken on the practicality hypothesis. Studies done by DaVanzo and Chan (1994) and Logan et al. (1998) have found that although the idea of coresidence is influenced by traditional values, Logan et al. (1998) argue that human behaviors do not always appear to be cultural traditions but, rather, are simply practical responses to people’s daily needs. DaVanzo and Chan (1994) also claim that in Peninsular Malaysia, married parents and children live together to economize on living costs.
or to receive help with household services. Therefore, they argue that coresidence with adult children among seniors is not a cultural practice. Rather, it may be “affected by the benefits, costs, opportunities, and preferences of coresidence vs separate living arrangements” (1994, p. 109). This resource change model provides a more lucid explanation in this case: it states that the choice of living arrangement is conditioned on the resources available to the elderly. The resources, including economics, health, and kinship status, are salient in the consideration of living arrangement choices (Mutchler and Burr, 1991).

The impact of industrialization and urbanization suggested by modernization theory has also contributed to a decline in coresidence of children and older adults in Taiwan. This theoretical perspective on elderly living arrangements in Asian countries has taken the effect of modernization into account. Modernization theory emphasizes the effects of modernization (i.e. technological advancement, industrialization, and modern education) on levels of familial support. In the process of urbanization and industrialization, family structures have changed, and these transitions often related to economic growth. New familial relationships emerge as traditional values and expectations give way to changing circumstances.

Consequently, modernization theory predicts that extended-type families are declining as a switch to nuclear family households occurs in the process of industrialization. In their study on Taiwan, Tung et al. (2006) reported that most respondents (53.9 percent) are still classified as having “neo-extended” families because they live short distances from relatives and maintain frequent contract with them; thus proving that extended families have gradually broken down into nuclear families. Moreover, modernization theory also predicts that living arrangements of elderly persons are affected by factors associated with the impact of modernization. In this respect, Cowgill (1986) has pointed out that the state of the elderly’s health is closely linked to their living arrangements.

In studies of the connection between living arrangements with children and the well-being of the elderly, empirical results present us a rather nebulous picture. Some previous studies have suggested that coresidence with children is beneficial to the elderly, whereas others find it detrimental to their well-being (Chen and Short, 2008; Sarwari et al., 1998; Zunzunegui et al., 2001). One main theoretical argument adopted in many relevant studies stresses that the older adults who live alone are more vulnerable to social isolation, as it has a tremendous impact on their health. This positive association between independent living and decreasing well-being tends to be more common in countries where coresidence with children among the elderly is normative (Wang et al., 2001). Furthermore, few examples of research results support this argument in the West (Waite and Hughes, 1999) while most studies of Western societies show that the elderly who live alone are reportedly healthier than those who live with others (Magaziner et al., 1988). Moreover, some even argue that living alone does not increase mortality risks among the elderly and is even protective against functional status deterioration (Sarwari et al., 1998).

These mixed results in previous literature reflect the significance and influence of cultural contextual differences among different societies. In East Asian countries where extended family is culturally dominant, a positive effect of coresidence with children on elderly health has been regularly reported in Chinese societies (Chen and Short, 2008). Both Taiwan and China, as well as other Sinic societies, have been greatly influenced by Confucian doctrines, and therefore adopted a patrilocial and patrilineal familial system in which the elderly prefer to live with the sons. Hence, the connection between living arrangements and older adults’ well-being needs to be examined under the theoretical premise that it is shaped by normative concepts in regards to family responsibilities and structure in Sinic societies.

This paper examines how living arrangements of the elderly will affect the risk of mortality, while theories have shown that many other factors can also influence people’s choices of living arrangements. Previous studies on the correlation between living
arrangements and well-being have presented mixed results which signify the complexity of the matter and the involvement of many factors. Different theoretical perspectives may provide a more comprehensive view to explain the complexity and diversity of this situation. The idea of coresidence could be influenced by traditional norms and culture; however, this paper will interpret this result not only by reference to traditional values but also by reference to the impact of social changes, and will dedicate close attention to the question of the correlates of coresidence.

**Methods**

The “1989 Survey of the Health and Living Status of the Elderly in Taiwan” was employed to test whether family integration affects mortality of the elderly. The survey was conducted by the Taiwan Provincial Institute of Family Planning, and the Population Research Center and Institute of Gerontology at the University of Michigan. This cohort study employed a probability sample of men and women aged 60 years and older in 1989, which was drawn from the household register in Taiwan. Initially, 4,412 elderly were selected from the sampling frame; by the end of October of 1989, 4,049 cases were interviewed, with a response rate of 91.8 percent. After the first wave of interviews, the follow-up survey was performed by personal interviews in 1993, 1996, 1999, 2003, and 2007. We studied the mortality rates of the elderly in relation to living arrangements during the follow-up period up to 2007, while considering baseline characteristics, such as gender, age, education, place of residence, economic security, self-rated health, functional limitations, chronic conditions, regular exercise, cigarette smoking, and alcohol drinking. In this study, we focus on four living arrangements: living alone, living with a spouse, living with a spouse and children, and living with children. Note that we did not specify marital status in our models, since living arrangement categories with a spouse present in the household has captured the effect of marriage on health.

Of the 4,049 baseline respondents, we excluded 285 respondents who were living in institutions or with other persons, such as relatives or nonrelatives, and who had missing data for preference for coresidence with children. Additionally, we removed nine respondents from analyses because they had missing data in one or more control variables. The final number of respondents for subsequent analyses was 3,755.

Age was used to examine the main effect of time on the risk of mortality. To facilitate interpretation, we centered age at 60 years old, so that the resultant age variable indicates years passing age 60. As living arrangements observed at the baseline served as remote influences on mortality risks, we further investigated whether these remote influences remain the same or vary by time by including products of the individual living arrangement dummy variable and age centered at 60 in the analyses. Gender is specified as being female relative to male.

Education has been shown to be an influential factor on older persons’ mortality in various studies (Liu *et al.*, 1998; Zimmer *et al.*, 2005). Because the majority of baseline respondents did not have formal education in their early years, we specified three levels of educational attainment: no formal education, primary, and more than primary. Ethnic identities in Taiwan include “Fukien Taiwanese,” “Hakka Taiwanese,” “Mainlanders,” and others such as aboriginals. Fukien and Hakka Taiwanese are earlier settlers who emigrated from the coastal regions of Fukien and Kwangtung provinces in China during the Qing dynasty and before Japanese colonial rule; Mainlanders are those Chinese who moved to Taiwan after 1945. As prior studies have shown that Mainlanders exhibit survival or health advantages over other ethnic groups in Taiwan (Beckett *et al.*, 2002; Zimmer *et al.*, 2005), we specified whether the respondent is Mainlander or not as the major ethnicity variable. Respondents were asked, “Do you (and your spouse) have enough money or have difficulties in paying bills every month?” Responses of “very sufficient with some money left,” and
“generally enough, not feeling shortage” are considered economically secure, whereas having various difficulty levels are treated as economically insecure. Place of residence was determined by whether the respondent lives in a rural area.

Health status was measured by three variables: poor self-rated health, number of functional limitations, and number of chronic conditions. Poor health was determined by respondents’ reports on evaluating their current health status. Functional limitations included difficulties in six physical activities: climbing one or two flights of stairs, walking for 200-300 meters, lifting or carrying a bag of rice, squatting, raising both hands over head, and grasping. Functional limitations were treated as numerical, ranging from 0 to 6 limitations. Seven chronic conditions that have been used in investigating mortality risks among older Taiwanese are chosen – hypertension, heart diseases, stroke, diabetes, high cholesterol, liver problems, and kidney problems (Zimmer et al., 2007). Chronic conditions were specified as a continuous variable in the discrete-time hazard models.

Health behaviors are also considered important factors in explaining survival among older Taiwanese (Liu et al., 1998; Zimmer et al., 2005). In the analyses, we included three measures: alcohol consumption, cigarette smoking, and regular exercise. We focused on respondents’ current behaviors in smoking and drinking. Whether the respondents engaged regular exercise is measured by the question “How often do you engage in sports or outdoor activities?” A response of “often” is considered regular exercise in contrast to sometimes, rarely, and never.

In measuring potential effects of social relationships, we included three variables regarding frequent contacts with non-co-residing family members, relatives, and friends, as suggested by Chen et al. (2010). In Asian cultures, or more specifically Chinese culture, the configuration of social relationships mostly begins with one’s own family and gradually expands outward to other domains in the society. Through this specification, we wanted to capture the greater family network, kinship network, and social network that surround the core household as the convoy structure for older persons.

We acknowledge that one’s current living arrangement may be a function of multiple factors at work in the past as well as in the present time. Due to data limitation, we can only observe respondents as they occupy the current living arrangements and follow their subsequent mortality status throughout the end of the observation period. We emphasize one particular factor that may potentially lead to older Taiwanese’s current living arrangement status: expressed preference for coresidence with children. Respondents were asked, “Do you think that older couples are better off living with married children, living by themselves, or living in other arrangements?” Although the question is not directed toward one’s preferred living arrangements, we believe that given the wording, it is sufficient to capture the respondent’s preference to coreside with children. As in a rapidly changing society, traditional values of coresidence may not be upheld to the extent they were before, the wording of the question may be able to detect our respondents’ expectation for living arrangements to some extent.

We aggregated three responses – living with a married son; living with a married child, not limited to son or daughter; and living with a married daughter – as positive preference for coresidence with children. “The older couple living by themselves” was considered negative for coresidence, while “depends” and “don’t know” and other responses were treated as “depends/unclear.” Together, the two categories identified respondents without positive preference to coreside with children in contrast to respondents who conformed to the traditional norm that older parents should live with their children.

We observed respondents’ mortality experience between 1989 and 2007. Mortality information was retrieved from household registry and death certificate records. A discrete-time hazard modeling approach was employed to analyze survival time. We transformed the person-level file into a person-year file covering survival experience during the period between 1989 and 2007.
Each individual contributed multiple person-year observations until the occurrence of death or being censored at the end of observation. A logistic regression model was estimated for the discrete-time hazard modeling (Singer and Willett, 2003).

Results

Description of the sample

Table I also shows baseline characteristics for individuals by their mortality status throughout the follow-up period. Among the 3,755 interviewees, 2,399 died prior to the end of observation in 2007. We observed very different characteristics between those who survived and those who died. Survivors were more likely to live with a spouse and children or living with a spouse and less likely to report preference for coresidence with children. These survivors were generally younger, better educated, more likely to be female, mainlander, economically secure, living in urban areas, and a self-respondent. They were less likely to report poor health, and more likely to report fewer functional limitations and fewer chronic medical conditions. They tended to engage in behaviors that promote health, such as more exercise and less smoking, but they were more likely to be a current drinker. Overall, the contacts with non-co-residing family members, relatives, and friends were more frequent among the survivors than the deceased.

<table>
<thead>
<tr>
<th>Baseline characteristics</th>
<th>Alive (%)&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Died (%)&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( n = 1,356 )</td>
<td>( n = 2,399 )</td>
</tr>
<tr>
<td>Living arrangements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living alone</td>
<td>7.7</td>
<td>9.5</td>
</tr>
<tr>
<td>Living with spouse</td>
<td>19.3</td>
<td>16.3***</td>
</tr>
<tr>
<td>Living with spouse and children</td>
<td>18.5</td>
<td>26.4***</td>
</tr>
<tr>
<td>Living with children</td>
<td>54.6</td>
<td>47.9***</td>
</tr>
<tr>
<td>Co-residence preference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depends/unclear</td>
<td>13.4</td>
<td>11.2*</td>
</tr>
<tr>
<td>With spouse only</td>
<td>25.4</td>
<td>19.3***</td>
</tr>
<tr>
<td>With children</td>
<td>61.1</td>
<td>69.6***</td>
</tr>
<tr>
<td>Mean age</td>
<td>64.8</td>
<td>69.5***</td>
</tr>
<tr>
<td>Female</td>
<td>48.9</td>
<td>39.5***</td>
</tr>
<tr>
<td>Mainlander</td>
<td>27.8</td>
<td>18.4***</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No formal education</td>
<td>42.3</td>
<td>53.1***</td>
</tr>
<tr>
<td>Primary</td>
<td>32.5</td>
<td>30.9</td>
</tr>
<tr>
<td>More than primary education</td>
<td>25.3</td>
<td>16.0***</td>
</tr>
<tr>
<td>Economic security</td>
<td>80.7</td>
<td>74.9***</td>
</tr>
<tr>
<td>Rural residence</td>
<td>33.4</td>
<td>36.8*</td>
</tr>
<tr>
<td>Proxy response</td>
<td>0.9</td>
<td>2.2***</td>
</tr>
<tr>
<td>Poor health</td>
<td>15.7</td>
<td>26.1***</td>
</tr>
<tr>
<td>Mean number of functional limitations (0-6)</td>
<td>0.65</td>
<td>1.41***</td>
</tr>
<tr>
<td>Mean number of chronic conditions (0-7)</td>
<td>0.64</td>
<td>0.91***</td>
</tr>
<tr>
<td>Often exercises</td>
<td>19.8</td>
<td>14.0***</td>
</tr>
<tr>
<td>Current smoker</td>
<td>28.0</td>
<td>38.9***</td>
</tr>
<tr>
<td>Current drinker</td>
<td>24.0</td>
<td>20.4*</td>
</tr>
<tr>
<td>Contact with family</td>
<td>78.2</td>
<td>75.0*</td>
</tr>
<tr>
<td>Contact with relatives</td>
<td>43.3</td>
<td>39.1*</td>
</tr>
<tr>
<td>Contact with friends</td>
<td>81.6</td>
<td>78.5*</td>
</tr>
</tbody>
</table>

Notes: \( n = 3,755 \). The study sample excluded respondents who were living with others or in an institution; percentages were presented except for age, number of functional limitations and number of chronic conditions that are means. * \( p < 0.05; ** p < 0.01; *** p < 0.001 \)
Family integration in relation to other variables of interest

Models of mortality risk over the course of study are shown in Table II. Odds ratios for different models are reported. In Model 1, we found that baseline living arrangements and coresidence preference were associated with a risk of dying. Both living with a spouse and living with a spouse and children were associated with a lower risk of dying compared to living alone, whereas the mortality risk for those living with children did not differ from those living alone. These effects remained as we included coresidence preference in the model, which also significantly improved the model fit (data not shown). Surprisingly, those who do not report the coresidence preference, whether affirmatively or not, were at a lower risk of dying than those expressing the preference.

In Model 2, after we added characteristics of older respondents, only living with spouse remained statistically significant in association with a lower mortality risk. The risks of other living arrangements did not differ from living alone anymore, and the differences in mortality risk by coresidence preference disappeared. As age was centered at 60 years old, the odds ratio for age suggests that for each additional year after age 60, the risk of dying increased by 10 percent. Women and Mainlanders were found to have lower risks of dying compared to men and non-Mainlanders, respectively. Having primary education

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living arrangements (ref. alone)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With spouse</td>
<td>0.79**</td>
<td>0.83*</td>
<td>0.83*</td>
<td>0.83*</td>
<td>0.86</td>
</tr>
<tr>
<td>With spouse and children</td>
<td>0.75***</td>
<td>0.90</td>
<td>0.93</td>
<td>0.94</td>
<td>0.98</td>
</tr>
<tr>
<td>With children</td>
<td>1.03</td>
<td>1.00</td>
<td>1.00</td>
<td>1.01</td>
<td>1.04</td>
</tr>
<tr>
<td>Co-residence preference (ref. with children)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With spouse only</td>
<td>0.80***</td>
<td>1.03</td>
<td>1.04</td>
<td>1.04</td>
<td>1.04</td>
</tr>
<tr>
<td>Depends/unclear</td>
<td>0.84**</td>
<td>0.96</td>
<td>1.00</td>
<td>1.00</td>
<td>0.99</td>
</tr>
<tr>
<td>Age</td>
<td>1.10***</td>
<td>1.10***</td>
<td>1.10***</td>
<td>1.10***</td>
<td>1.10****</td>
</tr>
<tr>
<td>Female</td>
<td>0.69***</td>
<td>0.51***</td>
<td>0.59***</td>
<td>0.59***</td>
<td>0.59***</td>
</tr>
<tr>
<td>Mainlander</td>
<td>0.77***</td>
<td>0.73***</td>
<td>0.75***</td>
<td>0.72***</td>
<td></td>
</tr>
<tr>
<td>Education (ref. = no formal education)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>0.91</td>
<td>0.95</td>
<td>0.95</td>
<td>0.95</td>
<td></td>
</tr>
<tr>
<td>More than primary education</td>
<td>0.76***</td>
<td>0.80**</td>
<td>0.80*</td>
<td>0.80*</td>
<td>0.87*</td>
</tr>
<tr>
<td>Economic security</td>
<td>0.80***</td>
<td>0.94</td>
<td>0.97</td>
<td>1.00</td>
<td>0.98</td>
</tr>
<tr>
<td>Rural residence</td>
<td>1.03</td>
<td>1.03</td>
<td>1.03</td>
<td>1.04</td>
<td></td>
</tr>
<tr>
<td>Proxy response</td>
<td>1.43**</td>
<td>1.09</td>
<td>1.09</td>
<td>1.10</td>
<td></td>
</tr>
<tr>
<td>Poor health</td>
<td>1.19***</td>
<td>1.18**</td>
<td>1.17**</td>
<td>1.17**</td>
<td></td>
</tr>
<tr>
<td>Number of functional limitations (0-6)</td>
<td>1.13***</td>
<td>1.13***</td>
<td>1.13***</td>
<td>1.13***</td>
<td>1.13***</td>
</tr>
<tr>
<td>Number of chronic conditions (0-7)</td>
<td>1.20***</td>
<td>1.22***</td>
<td>1.22***</td>
<td>1.22***</td>
<td></td>
</tr>
<tr>
<td>Often exercises</td>
<td>0.84**</td>
<td></td>
<td></td>
<td>0.84**</td>
<td></td>
</tr>
<tr>
<td>Current smoker</td>
<td></td>
<td></td>
<td></td>
<td>1.49***</td>
<td>1.47***</td>
</tr>
<tr>
<td>Current drinker</td>
<td></td>
<td></td>
<td></td>
<td>0.89*</td>
<td>0.89*</td>
</tr>
<tr>
<td>Contact with family</td>
<td></td>
<td></td>
<td></td>
<td>0.90*</td>
<td></td>
</tr>
<tr>
<td>Contact with relatives</td>
<td></td>
<td></td>
<td></td>
<td>0.95</td>
<td></td>
</tr>
<tr>
<td>Contact with friends</td>
<td></td>
<td></td>
<td></td>
<td>0.99</td>
<td></td>
</tr>
</tbody>
</table>

Table II.
Discrete-time logistic regression models for baseline living arrangements and mortality for individuals aged 60 and older in Taiwan, 1998-2007

Notes: Number of person-years = 48,491. *The study sample excluded respondents who were living with others or in an institution; †compared to a model with intercept only; ‡compared to the previous model.

*p < 0.05; **p < 0.01; ***p < 0.001
did not indicate a lower mortality risk, whereas respondents with education higher than primary education had a significantly lower risk than those without formal education. Economic security appeared to be important in predicting one’s mortality risk. We did not find evidence for differential mortality risks by rural or urban residence, but respondents with proxy responses appeared to be at greater risk of dying.

Subsequently in Model 3 through Model 5, we included sets of variables that represent baseline health status, health behaviors, and social relationships of the older respondents. Health measures in Model 3 had strong impact on one’s mortality risk, as the report of poor health, the number of functional limitations, and the number of chronic conditions, were associated with greater mortality risks and muted the effects of economic security and proxy response. In Model 4 for health behaviors, while we observed that smoking clearly increased mortality risk, doing frequent exercise and being a current drinker were associated with lower mortality risk. Results for regular exercise that improves health and reduces mortality risk have been reported, and an association of current drinking status with better health outcomes has also been reported elsewhere (Hayward and Gorman, 2004) and in research using the same data (Liu et al., 1998; Zimmer et al., 2005). Finally, measures for social relationships were added to Model 5, including whether one frequently has contact with non-co-residing family members, relatives, and friends. Unlike the previous models that improved model fit by adding sets of variables, adding social relationships in Model 5 did not improve the model fit compared with Model 4 in terms of change in log likelihood. Nonetheless, respondents with frequent contacts with family members were found to have a lower risk, and the effect of living with spouse was reduced to insignificance.

Note that the odds ratio for living arrangements and coresidence preference remained unchanged from Model 2 through Model 5. The effects of age, gender, Mainlander, and other variables also remained relatively stable across models despite the inclusions of health status, health behavior, and social relationships. In a separate analysis not shown, we found that age is the most influential variable that explains the effects of both baseline living arrangements and coresidence preference. We further examined the relationships among the three variables, by stratifying analyses by coresidence preference and adding interaction terms of age and living arrangements.

Hermalon and Yang (2004) found incongruence between preference and observed living arrangements among older Taiwanese. Preference for coresidence may indicate predisposing influences on the living arrangements observed at baseline. Interaction between living arrangements and age were examined for whether the effects of baseline living arrangements vary by age. Although it is not possible that no subsequent changes in living arrangement would occur after baseline, we draw on previous research suggesting that older persons tend to maintain their living arrangements, and the probability of changing living arrangements decreases with age (Wilmoth, 1998). We assumed that baseline living arrangements remain unchanged for a certain time, so the effects of baseline living arrangements on subsequent mortality may last somehow during the follow-up. Before adding interaction terms, the coefficient for each dummy variable of individual living arrangements represents the difference between the specific living arrangement and living alone. After adding interaction terms, the coefficient of each living arrangement dummy variable indicates the difference between the specific living arrangement and living alone at age 60, because we have centered the age variable at 60 years old. The coefficients of the interaction terms thus represent the additional difference of the specific living arrangement relative to living alone for each year increase in age since 60.

In Tables III and IV, we investigated whether the effects of living arrangements on mortality depend on one’s coresidence preference, and, whether these effects vary over time. Table III shows the results for those expressing preference for coresidence with children. In Model 1 of Table III, both living with a spouse and living with a spouse and children were
associated with lower risks of dying relative to living alone as in Table II. Both significant effects disappeared in Model 2 of Table III when controlling for age and other variables. Most of the additional variables in Model 2 of Table III had effects similar to those in Model 5 of Table II, except that education, poor health, current drinker, and contacts with family were not significant.

After interaction terms between living arrangements and age were added to the last model in Table III, those living with a spouse and living with a spouse and children at age 60 were found to have much lower risks of dying compared to those living alone at the same age. The mortality risks for those living with a spouse and those living with a spouse and children at age 60 were 74 and 72 percent, respectively, of those for respondents living alone at the same age. The mortality risk for those living with children did not differ from those living alone. Note that the interaction terms for living with a spouse and for living with a spouse and children are statistically significant, whereas the interaction terms for living with children are not. We would expect that mortality risks increase by age, but these findings suggest that the increased rates of mortality risk were not equal for different living arrangements. For each additional year lived beyond age 60, the mortality risks increased at a greater rate for those living with a spouse and for those living with a spouse and children than for those living alone. These increasing risks of dying gradually close the large mortality gap observed from the
much lower risks for those living with a spouse and those living with a spouse and children compared to those living alone. Together, these findings may explain why no differences in mortality risks among living arrangements were found before including interactions with age. In addition, these findings also suggest that the importance of living arrangements with respect to health diminishes with age, as an early US study indicates (Davis et al., 1992).

As Table III shows time-varying effects of living arrangements among respondents with preference for coresidence with children, in Table IV, we repeated the same analyses in three models among those without positive coresidence preference. We found no significant effects among living arrangements and interactions between living arrangements and age. Both the insignificance of living arrangements and interactions with age were found for respondents who express negative preferences toward coresidence and for those with unclear preference (not shown). We thus combined the two groups in Table IV as not positively reporting coresidence preference. For these without positive coresidence preference, living arrangements were not associated with mortality risk, controlling for interactions with age and other variables.

**Conclusion**

We have attempted to find out further empirical evidence concerning the question of whether family integration will enhance elderly health in Taiwan. As Taiwanese society is aging and
has become modernized, there are more older persons who choose to live with their spouses or live independently. We utilized a longitudinal data set to examine how living arrangements of the elderly affect the risk of mortality. Our analyses have shown that whether living arrangements are associated with mortality risks depends on one's preference for coresidence with children, and that the large mortality gap between those living alone and those who are coupled with or without children at the age of 60 closes over time. Both the associations of living arrangements and coresidence preference with mortality risk are largely weakened when controlling for other variables. Only among those expressing coresidence preference, living arrangements are associated with mortality risks, with effects that increase over time. For those who do not intend to live with children, we found no evidence suggesting living arrangements are associated with mortality risk.

The modernization theory predicts coresidence patterns in China will drop if external pressures on people's choices are relaxed (Logan et al., 1998; Chu et al., 2011). Although the causal link between living arrangements and mortality is more complex than that was specified in our analyses, our findings suggest that as long as the norm for coresidence with children is upheld, the conflict between older persons' inner expectation for coresidence and the declining possibilities for coresidence as indicated by the modernization theory may result in adverse health outcomes for older parents. One particular question is whether living in a child's household without the presence of a spouse is by any means beneficial, as we found evidence that the mortality risk does not differ from that for those living alone.

In brief, changes in living arrangements may imply that the family has gradually lost its functions in taking care of the elderly in Taiwan in recent years. Although to live with family members is the choice for most cohorts, more and more elderly are choosing to live with their spouse or independently. Since living alone implies less financial aid and social support for the elderly, those who choose to live alone or with their spouse tend to be better off, and more capable of maintaining good health than their peers in the general population.

Our findings are intriguing. They may indicate that after the socio-economic transformation of Taiwanese society, to live with children is still a very strong cultural norm among the elderly population. But the elderly population may not necessarily be better off in living arrangements other than living alone, a situation that depends on older parents' preference for co-residence with children. As the elderly prefer to live with their children or family members, especially when they become older when they are ill or disabled, stressful experiences and ambivalence between generations emerge. This situation tends to increase the burden of caregiving among the younger generation, in particular, the daughters-in-law of a family. It has thus become a gender issue and needs further investigation.

References


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This main purpose of this book is to contextualise and theorise the university ranking phenomenon in the specific context of Taiwan and to fully discuss the relationship between local university development and global competition between universities. The structure of this book includes eight chapters which are broadly divided into three parts. First, the author explains with much clarity the research background, methodology and theoretical foundations (Chapter 1) and broadly illustrates the social transformation of higher education system in Taiwan since the 1990s (Chapter 2). The author moves onto a theorisation of university rankings under the umbrella of neoliberal ideology and the political structure of “transnationality” and “heterarchical governance” (pp. 42-48) (Chapter 3). Second, empirical data collected from interviewees from five Taiwanese universities are put into a theoretical framework which distinguishes the four analytical dimensions of this research, embracing influences (Chapter 4), normative power (Chapter 5), global landscape (Chapter 6) and antinomy of power (Chapter 7). More specifically, the foundations of Chapters 4 and 5 depart from an ecological perspective and Chapters 6 and 7 turn to consider the geographical perspective. These four chapters directly resonate with the theorisation of university rankings in Chapter 3. Third, the author addresses the implications (ecology and geography) and provides reflections (methodology and theory) for future research.

Broadly speaking, the main argument of this research focusses on four dimensions of the ranking phenomenon with the intention of grasping the mechanism of global competition. The author provides a solid foundation for theorising university rankings within compressed time and space, as adopted from Giddens’ theory of globalisation at three stratified levels (macro, meso and micro). The foundations of meso (organisational) and macro (individual) level encompasses Foucault’s notion of “disciplinary power” (pp. 6, 161) and Bourdieu’s notion of “game playing” (pp. 7, 105). Those of macro (national and international) are chiefly underpinned by Altbach’s critical discourse of “neo-colonialism” and “dependency” in higher education (pp. 7, 51) and Marginson’s “antinomy of the knowledge economy” (pp. 7, 68). Before preceding the concrete analysis of university ranking phenomenon, the author reconcile the dichotomous traditional debate between “structuralism” and “post-structuralism” within “neo-institutionalism”, and then justifies university rankings as a “technology” and a “concept” (pp. 59-70). To put it another way, two perspectives (ecology and geography) and two conceptions (technology and concept) framed at three levels primarily constitutes the analytical framework of this research which deals with the contradiction between generalisation and particularity with reference to university ranking phenomenon. The four-dimensional framework interwoven by two perspectives and two conceptions, comprising the notion of “ecological-technical” (Chapter 4), ecological-conceptual (Chapter 5), geographical-technical (Chapter 6) and geographical-conceptual (Chapter 7), tends to
deepen the understanding of capturing the social reality and mechanism of the Taiwanese university ranking phenomenon (p. 11).

The analysis of main chapters in the second part (from Chapter 4 to Chapter 7) was mainly based on the methodological framework and theoretical perspectives discussed in the first part. Most of the core discussion revolves around the abstraction of “dichotomisation” or even “trichotomisation” back and forth between Taiwanese empirical data and aforementioned critical theories to discover the conflicts and contradictions embedded in real situations, including “differentiation and concentration of resources” (Chapter 4), “evaluation and competition” (Chapter 4), “research and teaching” (Chapter 4), “love and hate complex” (Chapter 5), “bright side (diverse openness) and dark side (homogenous closeness)” (Chapter 7) and “governing tool, zoning technology and mechanisms of agenda setting” (Chapter 6). More concretely, the main idea in Chapter 4 is how university ranking exerts a far-reaching influence on Taiwanese higher education policy at policy making, organisational and individual levels (p. 81). Three reasons are identified through empirical data which accounts for changes at different levels, including “policies and system arrangements” (involving in differentiation and concentration of resources), “differentiation and concentration of resources” (involving in evaluation and competition) and “reactions and reflections of academics” (pp. 81-99) (involving dilemma in teaching and research tasks). Moving forward to Chapter 5, Bourdieu’s “disciplinary power” and Foucault’s “hierarchy of academic disciplines” are used to examine the normative power struggle of “love-hate complex” in Taiwanese higher education arena (p. 103). This largely explains that the “penetration of power” is, to a great degree, based on the differentiated preference of embracing competition or struggling for autonomy at the level of individual institutions and faculty members (p. 106). On the other side, Chapters 6 and 7 put a high premium on the application of the geographical perspective. In Chapter 6, the author classifies the university ranking as “governing tool”, “zoning technology” and “mechanism of agenda setting” (pp. 119-133) which are embedded in the discussion of “geo-politics” in higher education and stress the university ranking phenomenon is a geo-political product of global landscape. Moreover, the author adopts the notion of “antimony of the power” to elucidate the competing forces between the construction of world-class worldwide and the resistance of world hegemony in line with the spirits of dialectical and reflexive methodology. The interaction between state policy, institution (organisational behaviour) and global paradigm is composed of “hard power” (state policy-institution) and “soft power relations” (global paradigm-state policy and global paradigm-institution) (pp. 139-142), further interweaving the specific experience of “openness” (diversity) and “closeness” (homogeneity) in the development of higher education in Taiwan (pp. 142-153). Simply put, these four chapters answer the three research questions posed by the author in Chapter 1, including the “influence and theorisation of university rankings” and “how the emergence of Taiwanese university rankings is activated within the context of global landscape” (p. 5).

On the whole, the logic and layer of argumentative structure between theories and empirical data is considerably coherent and rigorous. The book indicates that the constitution of local knowledge concerning the Taiwanese university ranking phenomenon is largely attributed to the exercise of “ecological” and “geographical” mechanisms in the global context of convergence and homogenisation. To be critical, there are three reflexive aspects that could be further considered. First, one possible limitation is that the research fails to discuss not only the influence of cultural norms and ideologies at the three levels, such as the role of “Confucianism” and “communitarianism”, but the dynamic interactions between specific Taiwanese academic cultures and the invasive culture of global capitalism as well. Second, in addition to cultural dimension, the extended question that needs to be asked is whether the western (European) theories (such as Foucault’s and Bourdieu’s
theoretical perspectives, etc.) are particularly suitable to account for the university ranking phenomenon in Taiwan. Accordingly, this conceptual-driven argument relies too heavily on the top-down approach of power interpretation on university ranking, but rather overlooks much of the folk history and ethnographic analysis (bottom-up approach), such as the reason why academics and students in Taiwan either reproduce or resist against this disciplinary system of university ranking. Third, in terms of an inferential perspective, the author could further elaborate on the dialectical relations between empirical evidence, social facts and generative mechanism. For example, what kinds of empirical evidence quantitatively or qualitatively underpin the objective formation of social facts and in what way the empirical evidence and social facts could retroactively infer the existence of generative mechanism that dominates the subjectivity of higher education development in Taiwan. To conclude, this book is indeed well-structured and useful for those who would like to explore and capture the elusive university ranking phenomenon in Taiwan within the context of global capitalism and post-colonialism.

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Les Indes et l’Europe. Histoires connectées XVe-XXIe siècles (India, Southeast Asia and Europe. A New History from 15th Century to 21st Century). Maps, chronology, glossary, bibliography, notes and index

Margolin Jean-Louis and Markovits Claude

Gallimard

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Keywords International, India, Europeans, Southeast Asia


India, Southeast Asia and Europe

This book covers a vast region currently divided in two macro-regions, South Asia and “Oriental India” or Southeast Asia, between the fifteenth and twenty-first centuries. Seen from Europe, this huge tropical region is “a very large open trade space” (p. 9).

The two authors published original historical books on this region. Markovits is an Emeritus Director of Research at the CNRS, specialist in colonial and contemporary India. Margolin is teaching at the University of Aix-en-Provence and also a Researcher at the CNRS (IrAsia). He is a specialist of Southeast Asia who, among other research, clearly analysed the complex question of communism.

Evidently colonial oppression and imperial nostalgia existed too much. This book presents a new historical vision. Margolin and Markovits’ new study courageously tries to put in relationship between Europeans academics and South and Southeast Asian scholars and intellectuals.

There are many European studies of this particular Asian region, but very few local studies of the Europeans seen by Asians (p. 737). Asian and European academic visions were not compatible. This study covers a new synthetic colonial history.
Here, the Indochina study is less developed because there are more good publications in French on Vietnam, Cambodia and Laos than on the other part of Southeast Asia. The aim of the European was initially too much oriented to find “Christian and spices”. Societies, colonialism, culture and the complex relationship between West and East were not explained in a synchronised manner.

The first to reach this distant Oriental India were the Portuguese, well-detailed in this easy-to-read publication. John II (1481-1495) was responsible for the rapid expansion of the Portuguese empire. In 1497, Vasco de Gama, the future vice-king of Portuguese India, discovered the direct maritime road to Portuguese “India”, Kerala (Cochin) in particular, Spice Islands and the Indian Archipelago. Economic motivations were essential, but the Portuguese empire aimed to be universal and messianic. In 1501, Portuguese were the first in the race to buy spices from Cochin (kept until 1663) to Portugal by the Cape of Good Hope. Portuguese, though conversion to Catholicism was visible, did not want to transform colonised people, on the contrary; “no promotion of European triumphant capitalism” (pp. 738-739). The authors prefer to describe a dominant Lusitano-Venetian spice trade structure than a pure Portuguese capitalism.

In the beginning the Europeans were established in Goa, Malacca, Batavia and Manila. Goa was controlling Portuguese Timor in the past. Margolin – editing with Markovits – described in detail the smallest country of Southeast Asia. East Timor’s early Portuguese history, end of colonialism, the period 1975-2000 with the annexation by Indonesia, United Nations electoral role (referendum) and its independence in 2002 (not exactly mentioned in the chronology) are well-detailed. European “connection” for Tetum, the national language with its Portuguese vocabulary is sealed. It marks a difference with Indonesia which sometimes seems to forget Dutch, the colonial language, still very useful to study the past history and archives (p. 755). Useful monographic descriptions appear such as: the “slow progression of knowledge” (cartography, study of political systems) (pp. 206-216), or “natural resources and nothing else?” (pp. 399-402). The economic development in Southeast Asia was locally organised by Chinese, Indian Chettiars or Chettys, and Eurasians (pp. 401, 472). Before the twentieth century, Europeans were “birds of passage”, but often risked their life in tropical Asia. Both communities, colonisers and local people, did not really try to understand each other. “Connection” between Europe and Asia was “limited, and discontinuous, in space and time”. Immigration of Asians to Europe really started after the Second World War (pp. 702-710). British and Spanish colonisation of India and the Philippines, Dutch’s domination of Java in the eighteenth century showed a new type of imperialism in the region. Intensive economic colonisation and important revolutionary transfer of population to Assam, Ceylon (tea), Malaysia (rubber), the Philippines (sugar cane), from Tonkin (Northern Vietnam) to Cochin China had certainly created a “complete disruption” (p. 741). In fact, intensive production constituted a turning point in colonisation. A case in point is given by British Burma which became the first exporter of rice in the world before the Second World War, thanks to the Indian Chettiars who replaced the deficient banking system.

Especially after the mid-eighteenth century, occurred dangerous “binary constructions”: dividing “them and us” (Asians and Europeans). Consequently racial conflicts appeared in India at the end of the eighteenth century. In 1900, a good counterexample, was the French education system in North Vietnam which was more balanced to preserve traditional education (p. 746).

Markovits’ “European domination and Indian resistance, in India, between 1765 and 1947” and Margolin’s economic foundation, actors and institutions in Southeast Asia are among the best parts of this study. It is a useful book for historians and readers who want to know more about the past and present influence of Europe in India and Southeast Asia.

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Population change in East Asia

Guest Editor: Edward Jow-Ching Tu

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