Giveaway Daughters and Mother's Attachment: A Test of Hrdy's Mother Nature Wen Shan Yang¹
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Giveaway daughters through adoption in colonial Taiwan was often associated with minor marriages in which a daughter-in-law was adopted into her future husbands' families at their infancy or early childhood. The main characteristic of minor marriages, therefore, is that the couples are raised together before their marriage. Various measures of the success of minor marriages, using variables such as fertility and divorce rates, are well documented. Wolf (2014) and Lieberman (2009) focus particularly on the effect of early association on sexual indifference, arguing that raising two children as kin, even when they are not biologically related, triggers an instinct for incest avoidance which contributes to low fertility rates and high divorce rates in minor marriages compared with other marriage forms including major marriages and uxorilocal marriages.

Less thoroughly studied, however, is the process of adoption itself. Social psychologists suggest that separation from parents at early children can dramatically shape an individual's long-term life outcomes. The present research is particularly interested in learning what factors can impact the well-being of giveaway daughters. To respond to the particular research interest, we probe how adoption is associated with parental attachment. The idea that many parents (even most parents, in some parts of Taiwan) would willingly adopt out their daughters appears to contradict notions of maternal (and possibly paternal) attachment to one's biological offspring.

Hrdy (2000) suggests that attachment between mother and child is contingent on historical, economic, and ecological circumstances. Both attachment and detachment to one's offspring can be biological response. After assessing whether their personal circumstances are suitable for child-raising, mothers make the autonomous choice to develop nurturing attachments. Conditioning overrides the biological instinct to always nurture. Additionally, Ainsworth (1979) proposes several styles of attachment that contribute to an individual's long-term development, such as the mental and physical health outcomes of adults. Secure attachment forms between healthy children whose parents are responsive to their needs while insecure attachment forms when parents are neglectful or inconsistently responsive to their children's needs.

Adoption causing the separation of children from their parents could be viewed as a significant life event for a giveaway daughter. Adoption may have a long-term effect on how an adopted daughter develops her attachment styles and mental and physical health as

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well. However, we suggest that the circumstances of adoption (e.g. age at adoption, sibling order, proximity to birth parents) can mediate or moderate the impacts of adoption. Particularly, we hypothesis that (1) those who adopted at an older age are more likely to have successful outcomes of mental and physical health, and (2) adopted daughters living in close proximity to their birth parents or ranking high in birth order may receive the more attention of their parents and then have better outcomes.

The present research drew data from Taiwan Historical Household Registers Database (1906-1945). Particularly, we focus on six research sites including 2 settlements in Taipei and 4 settlements in Xinzhu (about 100 kilometers away from Taipei). The outcome variable is the risk of death, and the independent variables are five include age at adoption, adoptive distance, birth order, and numbers of adoptive brothers and native siblings at adoption.

The descriptive statistics show that the total number of *adopted-in daughters* born between 01/01/1906 and 12/31/1945 is 12,469. There were 12.3% of adopted-in daughters died between 12/31/1945. Their mean age of death was 6.47. Further, the results of logistic regression analysis first show that adopted-in daughters in Taipei had a higher risk of death than the counterparts in Xinzhu. Meanwhile, the risk of death among the four settlements in Xinzhu has no significant difference. Second, age at adoption is rather significant. It is negatively associated with the risk of death for adopted-in daughters. In other words, those daughters adopted-in at a young age had a higher risk of death.

Third, the hypothesis stating that adoptive distance would have effect on the well-being of adopted-in daughters is supported. The data analysis reveals its impact is statistically significant. Fourth, the sibling size in adoptive family can contribute to the negative outcomes for adopted-in daughters. Giveaway daughters who lived with more adoptive brothers had a higher risk of death. Finally, the effect of sibling order on the risk of death is insignificant.

In sum, there are some unsupported hypotheses in this preliminary analysis. We are curious if Hrdy's mother nature is appropriate to explain the case of colonial Taiwan. Meanwhile, there are a great number of unanswered questions. This research topic deserves a further study. For example, among the adopted-in daughters, the mean age of death was 6.47. Is it too young? Would any factors have effects on the age of death? When did they die? How many years had they live in adoptive families?