Group Identity and Fertility: An Evaluation of the Role of Religion and Ethnicity in the Netherlands and Taiwan

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Modern scholarly discussion of differences in fertility among and within human populations was originally guided by the conviction that economic characteristics were the leading factor determining fertility levels and patterns. Demographic transition theory, which provided the theoretical framework for both historical and contemporary demographic research in the post-war West emphasized the impact of economic modernization in explaining fertility decline.[1] This scholarly consensus was challenged when members of the Princeton-based *European Fertility Project* concluded that cultural influences were often more important than economic characteristics in determining regional and temporal variations in fertility within European countries.[2] Studies of Belgium and Spain in particular revealed that structural differences in fertility coincided with linguistic barriers and thus with cultural boundaries, rather than levels of economic development. The significance of these conclusions was not restricted to countries undergoing industrialization. Societies, historical and contemporary, that had not yet undergone fertility decline were found to exhibit fertility differences that pointed to cultural as well as economic influences.[3]

The notion of non-economic determinants of fertility stems from the observation that the populations of nation states are rarely homogeneous. The compromises and conquests by which nations were created left within their boundaries populations exhibiting differences in behaviour and belief that social scientists categorize with such loose-fitting labels as "culture" and "ethnicity". The most frequently remarked are language, religion, and the assorted oddities that serve to announce political loyalty.

There is no iron-clad rule that differences of this kind must affect demographic behaviour. Our purpose in this paper is to compare two very different societies – the Netherlands in the years 1830 to 1920, and Taiwan in the years 1905-1945 – to determine whether or not the internal differences found affected fertility. Our goal is to discover when cultural heterogeneity of the kind found in modern nation states has demographic consequences. In other words, under what circumstances do differences make a difference?

The authors acknowledge that "culture" is one of the most used and least understood concepts in historical studies. Our experience in studying these two populations leads us to choose a pragmatic approach, rather than to engage in a methodological and semantic discussion on the definition of "culture".

This pragmatic approach finds parallels in approaches to the study of ethnic identity, for the kinds of economic, linguistic and cultural boundaries that demarcate fertility differences may also define identity groups. Frederik Barth's seminal work emphasizes that ethnic identity serves as a primary means of social differentiation.[4] Subsequent debate between "circumstantialists" and "primordialists" arose over whether, and to what degree, culture was the basis for such social differentiation.[5] More recently, even authors who recognize the importance of political economic circumstances to the development of ethnic

[1] Notestein, "Population. The Long View", 36-57.
[2] Coale and Watkins, *The decline of fertility in Europe.*
[3] Dupaquier, "L'autorégulation de la population Française", 413-436; Wrigley et al., *English population history* 1997; Knodel, *Demographic Behavior in the Past*.
[4] Barth, *Ethnic groups and boundaries.*
[5] E.g. Keyes, "The Dialectics of Ethnic Change".

identity have suggested that cultural meanings and practices are also relevant.[6] Here, then, is another debate over the relative influences of social (including political economic) factors compared to cultural factors.

Rather than assume a priori that culture is the determining factor, we compare marital fertility across three pairs of socially differentiating identities: Catholics and Protestants in the 18-19th century Netherlands, Hoklo and Hakka (two Han Chinese groups) in early 20th century Taiwan, and Hoklo and plains Aborigines (a Han and a non-Han group) in early 20th century Taiwan. Catholic and Protestant are religious identities, not ethnic identities. However, historians agree that they constitute clearly bounded social identities in the Netherlands during the 19th and 20th centuries. Marriage, for example, was rare across this social boundary. Hoklo and Hakka are sometimes called "sub-ethnic", regional, or speech group differences because both groups have long been considered Han (or ethnic) Chinese. Within the category of Han, however, they also constituted clearly bounded social identities in Taiwan in the 19th and 20th centuries. Again, marriage was rare across the boundary. The difference between Hakka and Hoklo, on the one hand, and the descendants of Taiwan's indigenous people, on the other, were ethnic, not religious, differences. Indeed, before 1930, the indigenous people constituted clearly bounded social identities. Intermarriage did occur, but primarily of a stigmatized sort. After 1930 or so, however, the social boundary between these identities disappears, and marriages occur freely across the previous boundary.[7] For scholars writing on Taiwanese society, ethnicity has the same central position in social differentiation as religion in the Netherlands.

In this paper we try to establish what differences in fertility existed between religious and ethnic subpopulations in Taiwan and the Netherlands. Whenever we find situations where competition between groups is strong, we expect group identity to effect behaviour significantly. McQuillan (2004) applied this idea to the relationship between religion and demography. In his view three preconditions have to be met before this relationship becomes visible. First of all, religious doctrines have to explicitly address (the morality of) demographic behaviours. Furthermore, the religious organizations need to have methods at their disposal to influence their members directly or indirectly, via, for instance, education, print media, etc. And, lastly, the adherents must feel a strong identification with their denomination. The last two preconditions enable religiously defined differences to influence demographic behaviors. Whenever denominations conflict with political authorities (as in N. Ireland) or when denominations try to strengthen their own position versus other denominations, group identity and the influence of religion on demographic behavior may be reinforced. The Netherlands is an ideal country to test these propositions, given the number of mutually demarcated religious groups. In the Taiwanese case we asked ourselves whether McQuillan's hypotheses regarding "confessionalization" are applicable to fertility differences among ethnic groups (McQuillan 1999: 170ff). Whenever possible we controlled for social and regional influences, and historical developments in our examination of differences between the Taiwanese subpopulations. No process affecting fertility behavior analogous to confessionalization occurred in the competition among ethnic groups in Taiwan. Our findings that differences in marital fertility *do* correspond to religious differences in the Netherlands but *do not* correspond to ethnic differences in Taiwan raise interesting questions for future research on the relation of fertility and identity to culture and whether there are more fundamental differences in social process between Asia and Europe than have previously been recognized.

[6] E.g. Ortner, "Identities: The Hidden Life of Class"; Harrell 2004 XX)
[7] E.g. Brown 2001XX; Brown, *Is Taiwan Chinese?*.

The Origins of Group Identity

Religion in Dutch society

The dominant axis of social differentiation in the Netherlands until well into the 20th century was religious denomination.[8] Even regional and social differences were influenced heavily by religious affiliation. The division of the country into distinct religious groups started in the 16th and 17th centuries, when the Dutch fought a war of independence against the Spanish emperor, Philip II. Although there is an ongoing discussion on whether the revolt was caused by political (*haec libertatis ergo*) or religious (*haec religionis ergo*) motivations, it is safe to say that Dutch Protestants rebelled against a Catholic monarch. From the end of the revolution, with the treaty of Münster in 1648, the new Dutch Republic of the United Provinces emphasized its Protestant character.

Even in the 19th and 20th centuries, regional variations in religious affiliation can be traced to this history. A line drawn from the south-west to the north-east, places the majority of Catholics in the eastern and southern parts of the country, and the majority of the Protestants in the northern and western provinces. This line came into being during the so-called Twelve Year Truce (1609-1621) when it separated the Protestant and Catholic forces. From 1648 the Dutch Republic established the Reformed Church as its official denomination, reducing the Roman-Catholics to a second-class subpopulation. The Protestant rulers practised a tolerance that later became an important feature of the Netherlands. Officially, only Dutch Reformed were allowed to worship publicly, but in daily life the state turned a blind eye to the activities of other denominations. Nevertheless for centuries important political and social functions were reserved for Protestants.

The official rehabilitation of Catholic citizens started with the Dutch version of the French Revolution in 1795, after which the preferential treatment of Protestants was abandoned. This process gained momentum in 1853 when Dutch Catholics restored their dioceses. During the second half of the 19th century, a new development in Dutch society became visible. More and more, the competition between Protestants and Catholics, and to a lesser degree Liberals and Socialists, created a new situation that dominated all societal relations. This process is called *Verzuiling* and can be translated as pillarization. Basically, this development amounted to a strict segregation of society according to the religious or social vision of the inhabitants. Pillarization reached its peak in the first decades of the 20th century. The result of this process was that within one country one could find several subpopulations living separate lives. When born a Catholic, for instance, one attended a Catholic school, married a Catholic partner, joined a Catholic labour union, and voted for the Catholic party. Even leisure activities were organized along denominational lines.

[Table 1 about here]

The distribution of the denominations remained almost unchanged until 1850. The majority of the Dutch population adhered to Protestantism, but Catholics formed a substantial minority. Other denominations were quantitatively negligible until the 20th century. From Table 1 we learn that around 1950 the number of Roman Catholics overtook the number of Protestants. This quantitative development is significant for the changing social position of the Catholics. Pillarization resulted in a so-called emancipation process, involving investments in better education, including the foundation of a Catholic University in 1923. By 1950, the social differences between Protestants and Catholics had vanished. The second half of the 20th century witnessed also the secularization of society. In 2000, 40% of the Dutch

[8]Knippenberg, "Een veelkleurig palet".

population was officially registered as not belonging to a denomination. In actual practice, however, 60% of the Dutch declared themselves to have no denominational affiliation.

Up to this point we have treated Protestantism as a single denomination. Protestantism in the Netherlands, however, cannot simply be brought together under one label. The Dutch Reformed Church harbours various streams, ranging from the very liberal to the very fundamentalist. In 1843, and again in 1886, two major divisions took place. In both cases large numbers of Orthodox Calvinists left the Dutch Reformed Church, which had become – in their eyes – too "modern". In 1849, this group consisted of only 1% of the Protestant population, but by 1899 8% of all Protestants were members of one of the secessionist churches. However, a large group of Orthodox Protestants remained within the broad Reformed Church. Because of the democratic character of this church, the separate communities are relatively independent. The process of secularisation in the 20th century affected Orthodox Calvinists both within and outside the Reformed Church to a lesser degree than Catholics and the liberal segments of the Dutch Reformed.

As already mentioned these three major denominations in the Netherlands constituted clearly segregated subpopulations with their own way of life. This social segregation becomes evident, among other things, when we study their demographic behaviour. Time and again, research into the demography of the Dutch has concluded that Roman Catholics adhered to a traditional interpretation of marriage and reproduction. Restrictions on marriage to non-Catholics remained strong until 1960. Also, the prohibition of all forms of contraception kept Catholic marital fertility at a very high level, even when compared to Catholics in neighbouring countries. Dutch Reformed couples, on the other hand, adopted "modern" reproductive behaviour to a much greater degree and at an earlier date. Calvinists took an intermediate position, although closer to the Catholics.[9] Most of the studies referred to, however, were conducted on the basis of aggregated data. This paper will use individual level data to demonstrate the influence of denomination on reproductive behaviour.

Ethnic variation in Taiwan

In the Taiwanese case, ethnic groups were not distinguished by differences of religion; popular Confucianism uniformly emphasized the value of children, especially sons. We, therefore, turn to another possibly "cultural" influence. The late imperial Chinese empire encompassed great ethnic diversity. The Han majority – called "ethnic Chinese" by most Westerners with seven mutually unintelligible Chinese "dialects"[10] as well as documented regional variation in marriage practices[11] and political economy [12] displayed at least as much ethnic and linguistic diversity as western Europe. Non-Han ethnic groups, speaking languages distantly (if at all) related to Chinese and practicing their own customs, constituted the local majority in many parts of the Chinese empire, especially in border regions. In early 20th-century Taiwan, membership in two Han and two non-Han ethnic groups was still a salient determiner of social status and group membership.

Southern-Min-speaking Han migrants and their descendants dominated Taiwanese society, demographically and politically. Most came from Zhangzhou and Quanzhou, two southeastern prefectures of Fujian province. In Taiwan, Min-speaking Han called themselves "Hoklo," the term we use here, and most were entered into the household registers as "Fujianese." (Min-speaking Han in other parts of southeast Asia called themselves "Hokkien," a term also used to refer to Taiwanese Hoklo.) Kejia-speaking Han migrants and

[9] Engelen and Hillebrand, "Fertility and Nuptiality".
[10] Ramsey, *The Languages of China*.
[11] Chuang and Wolf, "Marriage in Taiwan"; Stockard, *Daughters of the Canton Delta*.
[12] Gates, *China's Motor*.

their descendants, known as "Hakka", constituted a significant Han minority in Taiwan. Most came from Chaozhou, Jiayingzhou, and Huizhou, three prefectures in northern Guangdong province, and were entered into the registers as "Guangdongese."

The Han classifications that appear in the Taiwan household registers as "race" or provenance (*zhongzu*) – *fu* (for Fujian province) and *guang* (for Guangdong province) – can serve as approximate ethnic indicators. However, because they actually indicate the province of ancestral origin of an individual's presumed biological father (or birth mother, if the father was unknown), there are two important qualifications to bear in mind. First, two small groups of Han cross-cut the correspondence between provincial origin and ethnolinguistic group (see table 2). Most significant was a small group of Min-speakers who came from the lowland, coastal areas of Guangdong provinces's Chaozhou prefecture; they appear in the registers as "Guangdongese." A much smaller group of Kejia speakers, who came from Tingzhou prefecture in Fujian, appear in the registers as "Fujianese." It is not possible from the registers to distinguish individual members of these cross-cutting groups, though local histories preserve the presence or absence of such populations. None of the household register sites is included among those townships where significant numbers of Tingzhou and Chaozhou residents are located. A second qualification about these approximate ethnic categories is that they do not indicate the ethnolinguistic classification individuals experienced in social interaction. Rather registered provenance was assigned at birth on the basis of father's provenance. Adoptions across these categories, especially of girls, were common and readily identifiable in the registers.

[Table 2 about here]

The many Austronesian-speaking indigenous peoples or Aborigines of Taiwan have long been categorized into two broad groups which reflect their relationship with Han peoples. ("Aborigine" is the preferred English appellation of the Alliance of Taiwan Aborigines.) The Japanese-period household registers, following late imperial Chinese practice, use the pejorative labels of "civilized barbarians" (*shufan*) and "wild barbarians" (*shengfan*); the same groups are now politely referred to as "plains Aborigines" (*pingpu zu*, or "Pepo", lit. "plains tribes") and "mountain Aborigines" (*gaoshan zu*, lit. "mountain tribes"). The mountain peoples include at least nine ethnolinguistic groups with several thousand years' occupation of Taiwan's high central mountains, narrow eastern plains, and islands off the southeastern coast. Many of these peoples defended their political independence into the Japanese-period and consequently are not well represented in the registers. The many plains peoples, divided among more than ten distinct ethnolinguistic groups, came early under Chinese political authority and cultural influence[13] The 17th-century Dutch ranked their primary allies of the southwestern plains, called the Siraya, as the most important of the Aborigines. Han colonization from the 17th through late 19th centuries made the Aborigines a minority demographically and politically. By 1905, though many if not most had adopted Han language (Southern Min) and many customs, plains Aborigines were still referred to as "savages" (*fanzi*, T. *hoan-a*) by their Han neighbors and distinguished in the registers as "civilized" (*shu*).[14]

During the frontier era, the various Han and non-Han ethnic distinctions had political-economic significance. Han colonists' reliance on home town ties as important elements of networks for mutual aid and defense resulted in communities largely residentially segregated by speech group and provenance. Such ties were often cemented in worship groups and

[13] Shepherd, *Statecraft and Political Economy on the Taiwan Frontier*.
[14] Brown, *Is Taiwan Chinese?*

networks of temples devoted to patron deities identified with particular home towns on the mainland.[15] These worship groups, however, did not develop sectarian ideologies, clerical hierarchies, or a role as exclusive "denominations" in the way Protestant and Catholic groups did in Europe. Rivalry and mutual suspicion among these settler groups frequently led to violent conflicts between communities.[16] Weak imperial government control on the frontier meant these conflicts often escalated out of control (anti-dynastic rebel groups occasionally fanned the flames), and had to be suppressed by military campaigns and reinforcements of government troops from the mainland.[17] Hakka and plains Aborigine militia often joined government troops to put down rebellious Hoklo, though occasionally some plains Aborigines joined the rebels. (When the rebels were Zhangzhou Hoklo, then Quanzhou Hoklo communities often joined the government side as well.) Repeated conflicts reinforced the internal solidarity and residential segregation of the settler groups, so that ethnic enclaves came to dominate large swaths of territory.

By the late 19th century, such communal strife had largely ended, though the geographic distribution of ethnic groups through the mid-20th century still reflected the earlier hostilities. The Hakka population was concentrated in two main areas of Taiwan: the northwestern plains and foothills in Xinzhu and in southwestern Taiwan along the eastern edge of the Pingdong plain. At the beginning of the 20th century, pockets of plains Aborigine concentration occurred in several locations (south, central and north) on the western plains, in the Puli basin of the central mountains, and on the northeastern plain near Yilan.

These ethnolinguistic distinctions are widely assumed to correspond to crucial cultural differences, continuing from the imperial period into the present. In the early 20th century, Hoklo and Hakka spoke mutually unintelligible languages.[18] However, they shared fundamental Han practices and beliefs, including patrilineal ancestor worship, Confucian-justified parental authority, equal property inheritance among brothers, and folk religion.[19] Beyond language, Hakka were reputed to be different from Hoklo – and from most Han groups – in granting women a higher position in family life, with women purportedly contributing as much or possibly more labor than Hakka men to the family.[20] Such conclusions primarily derive from the easily observable difference that – before the Japanese colonial government suppressed footbinding throughout Taiwan in 1915 – Hakka, unlike Hoklo, did not bind their daughters' feet.

Shepherd demonstrates from census reports that by the time they were adults, more than 90 percent of all women registered as Fujianese (mostly Hoklo women) had bound feet and that the 1.64 percent of Guangdongese women with bound feet were most likely Min-speakers from Chaozhou.[21] Although the lack of footbinding surely led to higher expectations of field and heavy manual labor contributions from girls and women among Hakka than among Hoklo, it does not necessarily follow that the Hakka gender system was any less patriarchal. Hakka, like Hoklo, did not raise a surplus of daughters, giving girls out in

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[15] Wang, "Religious Organization"; Sangren, *History and Magical Power in a Chinese Community*.
[16] Lamley , "Subethnic Rivalry" .
[17] Meskill, *A Chinese Pioneer Family*; Shepherd, S*tatecraft and Political Economy on the Taiwan Frontier.*
[18] E.g., Branner, *Problems in Comparative Chinese Dialectology.*
[19] E.g., Cohen, *House United, House Divided* ; Pasternak, *Guests in the Dragon*; Chuang, *Chia-tsu yu hun-yin.*
[20] Davidson, *The Island of Formosa,* 590-591; Lechler, "The Hakka Chinese", 358, 359; Oehler, "Christian Work Among the Hakka", 352; Mackay, *From Far Formosa,* 102; Campbell, *Sketches from Formosa,* 249; Pickering, *Pioneering in Formosa,* 67-68; Wolf and Huang, Marriage and Adoption in China, 427-428.
[21] Shepherd, "Marriage Mode and Marriage Market".

adoptions for minor marriages and reportedly practicing female infanticide.[22] Evidence from the household registers shows that Hakka and Hoklo marriage and adoption patterns were very similar, suggesting that Hakka women had no more control over their fertility than Hoklo women, an implication we explore further here.[23]

Did ethnic distinctions between Hoklo and plains Aborigines correspond to crucial cultural differences in the early 20th century? In the 17th century, plains Aborigine ethnolinguistic groups showed dramatic cultural differences from Han – including matrilineal inheritance and gender systems with related "casual" attitudes about sexual relations, and other differences in courtship, marriage, divorce, and remarriage as well as language, religion, and subsistence; some of these differences, diminished in degree, were still noted by late nineteenth century missionaries.[24] By 1900, most remaining cultural differences were not readily observable.[25] Plains Aborigines were native speakers of Southern Min and practiced commercial Hoklo-style agriculture, including sugarcane and wet paddy rice (where conditions allowed). They used Han forms of marriage – Shepherd argues in largely the same frequencies (excepting minor marriage) as neighboring Hoklo; Brown argues in ethnically differentiated frequencies prior to the 1920s.[26] Funerary practices, linkage of inheritance of property to surnames, and patterns of adoption followed Hoklo patterns. Though differences in burial practices and women's use of betel and alcohol existed, the most visible difference between Hoklo and plains Aborigines was that Hoklo bound their daughters' feet and plains Aborigines did not. In 1905, only 0.5 percent of females registered as plains Aborigines had bound feet. As with the Hakka, lack of footbinding among plains Aborigines – especially when combined with evidence for 17th-century matrilineal inheritance – might lead to the assumption that plains Aborigine women in the 20th century had more status and power in the family than Hoklo women did. Such assumptions are problematic.[27]

Elderly people interviewed in the study sites of Toushe (in Danei) and Jibei reported that, in the early 20th century, footbinding served as the marker distinguishing Hoklo from plains Aborigines.[28] (There were no Hakka in this area.) Brown argues that the colonial government's suppression of footbinding created a context which allowed plains Aborigines in Toushe and Jibei to acquire Hoklo identity around 1930, an identity she argues they maintained until the mid-1990s.[29] Except for religious worship of one or more Aborigine deities[30], which have been maintained through the present, remaining differences in customs between these and neighboring Hoklo communities disappeared over the course of the 20th century.[31] In sum, ethnic distinctions between Hoklo, Hakka, and plains Aborigines were politically important in the 17th through 19th centuries, and these distinctions are often assumed to correspond to important cultural differences throughout the 20th century.

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[22] Lechler, "The Hakka Chinese", 359; Lutz and Lutz, *Hakka Chinese Confront Protestant Christianity*, 181-82, 224; Oehler, "Christian Work Among the Hakka", 352; Wolf and Huang, Marriage and Adoption in China, 7-8, 336-337, 350.

[23] Shepherd, "Siraya Marriage Practices"; Wolf and Chuang, "Fertility and Women's Labour", 430-431.

[24] E.g., Shepherd, *Marriage and Mandatory Abortion*; Shepherd, "Siraya Marriage Practices".

[25] Brown, *Is Taiwan Chinese,* 74-94.

[26] Shepherd, "Siraya Marriage Practices"; Brown, *Is Taiwan Chinese,* chapter 3.

[27] Brown, *Is Taiwan Chinese.*

[28] Brown, *Is Taiwan Chinese,* 69, 95-97.

[29] Brown, *Is Taiwan Chinese.*

[30] E.g., Shepherd, "Sinicized Siraya Worship"; Pan, "Toushe cun de juluo fazhan zuqun guanxi"; Pan, "Wenhua hechang yu hecheng wenhua"; Brown, *Is Taiwan Chinese.*

[31] Brown, *Is Taiwan Chinese*, 88-94

Data

For the Dutch case, we combine six datasets in this paper. The first one is drawn from the Historical Sample of the Netherlands, a large database still under construction that will eventually contain more than 70.000 life courses. The database is built from a random sample (0,5%) in the Dutch birth certificates of 1812-1922, linking and entering all information in both the civil registers (birth, marriage and death certificates) and the continuous population registers which started in 1850. Their complete life courses were reconstructed by following them in all their successive places of residence.[32] We use the first, more or less completed, part of this database that covers the province of Utrecht. We limit the analysis to married persons in their first marriage (N=785). Their birthplaces were evenly spread over the urban and rural parts of the province.

The second dataset is built from a marriage cohort in one North-Holland village (1830-1879). All first-marrying couples (N=280) in Akersloot, an agricultural community about thirty kilometres to the northwest of Amsterdam, were traced in their migration trajectories. Akersloot was an ordinary North-Holland village, except for the fact that its continuous population registers started in 1830. The third dataset is drawn from a small – but extremely labour-intensive – family reconstruction in the city of Amsterdam (1820-1850). This database, originally intended as a three-generation study of poor relief recipients, consists of 84 families. The fourth dataset consists of married women born in the city of Rotterdam between 1872 and 1902 (N=599). Their life courses have been traced in the context of an epidemiological study. The women were originally selected by taking a sample from Rotterdam birth certificates. A number of them are part of the Historical Sample of the Netherlands.[33] Their fertility histories were reconstructed even after they had left the city. Finally, we make use of two datasets collected in the provincial town of Nijmegen and the proto-industrial village of Borne. Both datasets contain marriages contracted in the 19th century, 332 for Nijmegen and 285 for Borne.

Previous research on Dutch fertility has demonstrated convincingly that Roman Catholics and – to a slightly lesser extent – Orthodox Protestants rejected modern forms of birth control. Thus, at least from the late nineteenth-century onwards, Roman Catholics and those Orthodox Protestants that could be easily identified as such (*Gereformeerden*) displayed higher levels of marital fertility than people without a religion or people belonging to the Dutch Reformed Church. The "modern" behaviour of the aggregated Dutch Reformed has been ascribed to the dominance of liberal groups within the Reformed Church. The province of Utrecht, especially its southeastern part, is one of the heartlands of fundamentalism *within* the Reformed Church. Surprisingly, this fact has been ignored in an earlier analysis of the relationship between religion and fertility in this province.[34]

How can we distinguish between liberal and Orthodox Protestant *individuals?* The censuses and populations registers simply count individual Reformed fundamentalists as Dutch Reformed. However, the religious orientation of the church *ministers* is known. In 1920, all ministers in 33 Utrecht municipalities belonged to the Orthodox '*confessionelen*" or to the *"Gereformeerde Bonders*".[35] Since communities chose their own ministers, it can be assumed that these communities were Orthodox in the nineteenth century. We hypothesize that Dutch Reformed individuals who were born in such a predominantly Orthodox community were likely to be Orthodox themselves. In the category "Orthodox Protestants" we have combined them with members of the various Calvinist secessionist churches. In addition,

[32] Mandemakers, "Historical Sample of The Netherlands".
[33] Smits, *Preconceptional Determinants*.
[34] Hillebrand, *Van motivatie tot acceptatie*.
[35] Knippenberg, 'Een veelkleurig palet; Knippenberg, *De Religieuze Kaart van Nederland.*

individuals belonging to evangelical movements (e.g. Salvation Army, Baptists etcetera) were assigned to this category. Finally, couples were put in this category when at least one of the partners was Orthodox.

We have combined various liberal denominations into one category. This "liberal Protestant" group consists of the Dutch Reformed, except for those likely to be Orthodox. In addition, we include the Mennonites, the Lutherans and the Remonstrants. In our view, a mixed marriage, in particular one between a Protestant and a Catholic can be interpreted as a sign of moderate religiousness. Thus, our fourth category consists of mixed couples. Persons belonging to other groups (such as Jews, and Catholic seccessionists), persons without a denomination and persons whose religion was unknown were not included in our analysis.

Household registers from four Taiwanese localities have been selected for use in this paper. Two sites come from southwestern Taiwan, Danei, which has a majority Hoklo population but also a significant plains Aborigine minority, and Jibei which has a plains Aborigine majority population. Many people classify the plains Aborigines of Danei and Jibei as related to the Siraya ethnolinguistic group identified by the Dutch in the 17th century.[36] Our third site, Zhubei, located in the northwestern county of Xinchu, had a population evenly divided between a Hoklo area (Jiugang) and a Hakka area (Liujia). The fourth site, Lukang, a small town on the central western coast of Taiwan, is predominantly Hoklo. These four sites thus contain representatives of three of the four main ethnic groups of Taiwanese society, and provide a total of six locality/ethnic groups for comparison (Danei Hoklo, Danei plains Aborigines, Jibei plains Aborigines, Zhubei Hoklo, Zhubei Hakka, and Lukang Hoklo). We will also draw on previous studies of household registers from the communities of Lungtu, a Hakka area in southern Taiwan, Zhongshe, a Hoklo village located not far from Danei and Jibei in southwestern Taiwan, and Haishan, a Hoklo area in the Taibei basin, in northern Taiwan.[37]

Hypotheses

In the Netherlands the study of the influence of religion on fertility has been concentrated heavily on the period during and after the onset of the fertility decline. According to these studies the differences between a "traditional" mentality ascribed to the Roman Catholics and Orthodox Protestants and a "modern" or "liberal" mentality ascribed to the Dutch Reformed led to a difference in the pace in which modern forms of birth control were accepted.[38] For a long time, "traditional" groups rejected modern forms of birth control and continued to rely on the Malthusian methods of late marriage and celibacy. On the other hand, liberal Protestants and persons without a religion were more prone to accept the innovation of parity specific birth control. Why should we also expect differential fertility behaviour *before* the transition?

Three reasons lead us to expect that differences between religious groups affected fertility. First, the prudential restraint demanded from pretransitional couples (no premarital sex and waiting with marriage until economic independence had been achieved) may have varied among religious communities. Both Catholics and Calvinists secured high levels of

[36] Shepherd, "Sinicized Siraya Worship"; Liu, "Taiwan nanbu diqu pingpuzu de Ali Zu xinyang"; Shi Wanshou, *Taiwande baihu minzu*, but see Pan, "A Study on the Pragmatics of Human Understanding"; Pan, "Toushe cun de juluo fazhan zuqun guanxi"; Pan, "Wenhua hechang yu hecheng wenhua"; Tsuchida et al., *Linguistic Materials*).

[37] Pasternak, *Guests in the Dragon*; Wolf and Huang, *Marriage and Adoption in China*.

[38] Boonstra and Van der Woude, "Demographic transition in the Netherlands"; Engelen and Hillebrand, "Fertility and Nuptiality".

conformity to the required level of "morality" with mechanisms of social control, such as public shaming of pregnant brides. On the other hand, in the Dutch Reformed Church these mechanisms had become obsolete by the first half of the 19th century. Indeed, there were conspicuous differences in the levels of bridal pregnancy and illegitimacy between Catholics and Calvinists (*Gereformeerden*) on the one hand, and Dutch Reformed on the other.[39] Couples that had their first child earlier than other couples, either because of a premarital conception or not, were likely to have a larger family size.

Secondly, religious groups differed in breastfeeding practices. For instance, an individual-level enquiry in The Hague in 1908 showed that Catholics practiced less breastfeeding than Protestants (and both groups less than Jews).[40] The reluctance of Catholic mothers to breastfeed their infants has been associated with the relatively high infant mortality among Catholic children in the second half of the 19th century.[41] Shorter birth intervals in Catholic families were another effect, even apart from the death of the previous infant.[42] The rejection of breastfeeding among the Catholics has been ascribed to the extraordinary prudishness the priests insisted upon. In fact, after 1850 the clergy started a campaign against breastfeeding on the ground that exposing the breasts was something shameful.

Thirdly, differences in (religious) mentality may result in differential behaviour of couples with respect to discussing and applying conscious means of regulating fertility. Before 1900, the most important means of limiting the pace of childbearing were withdrawal and abstinence.[43] For some couples, the application of these means may have resulted in earlier stopping with childbearing. The Reformation has often been associated with rationalist and pragmatical attitudes. According to McQuillan, "(...) Protestantism encouraged individuals to accept responsibility for handling the problems of everyday life".[44] This Weberian view has found occasional support in historical demography.[45] However, Dutch Calvinists tended to submit themselves to God's will to the same extent as the Roman Catholics. For instance, in the early 19th century, both Catholic and Orthodox Protestant villages were very reluctant to adopt vaccination against smallpox. On the other hand, liberal Protestant denominations like the Mennonites took the lead in this respect.[46] The official doctrines of the Reformed Church were much less uniform in their rejection of individual control of fertility than Calvinist and Catholic ones.[47] This may have given liberal Protestants even more leeway to experiment with forms of fertility control.

There is no established literature documenting a consistent pattern of ethnic difference in fertility among the Taiwanese ethnic groups. Rather, there are isolated speculations in the literature that assert or by their logic imply fertility differences for these ethnic groups. We grouped these speculations into three hypotheses.

The first is what we term the *footbinding hypothesis*. It is premised on the well-known fact that unlike other Han women, Hakka women did not bind their feet and worked in the fields and sometimes on construction jobs. The hypothesis envisions two possibilities, both of which predict lower fertility among the Hakka than among the Hoklo. The first is that heavy

[39] Kok, "The moral nation".
[40] Saltet, *Sterfte*.
[41] Wolleswinkel-Van den Bosch, *The Epidemiological Transition*; Van Poppel et al., "Religious Differentials in Infant and Child Mortality".
[42] Meurkens, *Sociale veranderingen in het oude Kempenland*.
[43] Szreter et al, "Fertility and contraception".
[44] McQuillan, *Culture, Religion and Demographic Behaviour.*
[45] Perrenoud, "Malthusianisme et protestantisme" .
[46] Rutten, *De vreselijkste aller harpijen*.
[47] Van Poppel , "Late Fertility Decline".

labor depleted Hakka women's child-bearing capacity. The second is that the contribution they made to the family economy enhanced Hakka' women's status vis à vis their husbands and parents-in-law. Compared then with Hoklo women who bound their feet and were limited to domestic tasks, Hakka women were in a better position to limit their fertility when they desired doing so. The same hypothesis applies to plains Aborigine women who also did not bind their feet, in contrast to Hoklo women.

Our second hypothesis is the *natural fertility hypothesis.* It stems from the assumption that because of cultural preferences and concern for old age security, none of the groups we are comparing wanted to limit their fertility. Fertility was "natural" in the sense that there was no deliberate fertility control. The hypothesis predicts that the fertility of the three groups followed Louis Henry's natural fertility pattern at roughly the same level. Differences in level will be attributable to differences in premarital sexual relations, age at marriage, breastfeeding, and infant mortality. They will not be attributable to cultural preferences, the position of women, or differences in the economic value of children.

Our third hypothesis we term the *standard of living hypothesis*. It stems from the fact that the Siraya plains Aborigines in Danei were demonstrably poorer than both their Hoklo neighbors in Danei and their fellow plains Aborigines in Jibei. What the hypothesis predicts depends on what one assumes about the relative effects of infant mortality and poor nutrition on fertility. While poverty may raise fertility by raising infant mortality and thus shortening birth intervals, it can also lower fertility by reducing fecundability and lowering the proportion of all conceptions that result in a live birth.

Findings for The Netherlands

For reasons mentioned above we divided the analysis of the Dutch data into two parts: one dealing with the period before the fertility decline, (women born before 1860), and the period of the decline itself as found in the fertility of women born after 1860. In Table 2 we first look at the onset of procreation of women born before 1860. To what extent did religious groups differ in "starting"? Village reconstitutions have shown that the age at marriage of both men and women of religious minorities was higher than those of the majority groups. In these villages the Orthodox Protestants, the practicing members of the Reformed Church and the Roman Catholics married at higher ages than the non-practicing members of the Dutch Reformed Church. This was explained by the difficulty members of minority groups encountered in finding a spouse resulting in a longer period of waiting.[48] However, we can also assume that mechanisms of social control were more effective in Orthodox and Catholic communities, both with respect to delaying marriage and preventing premarital sexuality that could bring forward the wedding. Table 3, however, does not yield unambiguous conclusions. Women from both Protestant groups (Liberals and Orthodox) married earlier than the Catholics – a difference of roughly two years, which can probably be ascribed to their much higher levels of premarital pregnancies. Overall, pregnant brides married 2,7 years younger than non-pregnant brides. The compliance of Orthodox Protestant couples to their churches' insistence on sexual purity seems oddly at variance with premarital "licence". Indeed, a high incidence of premarital pregnancies was conspicuous among certain pietist sections within Dutch Orthodoxy.[49] Interestingly, the religiously mixed couples displayed a combination of both late marriage and high levels of premarital pregnancies.

[Table 3 about here]

[48] Noordam, *Leven in Maasland*.
[49] Kooy and Keuls, *Enforced marriage in the Netherlands*.

Obviously, premarital pregnancies effect marital fertility. The concentration of such "forced marriages" in particular age groups biases the calculation of the Age Specific Marital Fertility Rates (ASMFR) because the period "at risk" of conception after the wedding is shorter than in age groups with a lower incidence of pregnant brides. Thus, the denominator is smaller and the ASMFR higher. We solve this problem following a procedure developed by Wilson (Wilson 1984; Van Bavel 2001). We calculate the mean intervals between marriage and first births in the case of pregnant and non-pregnant brides. Then we add the difference between these intervals (generally about a year) to the period at risk of the pregnant brides. Figure 1 presents the ASMFR by religious group. It shows that the fertility rates of the Roman Catholics and Orthodox Protestants were very close to the natural fertility standard as depicted in Xie's index (see also Kok, Yang and Hsieh in this volume). Liberal Protestant and mixed couples had markedly lower levels although the convex shape of their curves suggest that they did not practice parity-specific fertility limitation on a large scale.

[Figure 1 ASMFR by religious group about here]

In the contribution of Kok, Yang and Hsieh to this volume it is demonstrated that the birth intervals of Roman Catholics and Orthodox Protestant couples were shorter than those of liberal Protestant couples even after controlling for the death of the previous infant. Similar results have been reached in other recent studies.[50] Longer intervals, leading to lower ASMFR, may result from either prolonged breastfeeding or from deliberate efforts among – at least a number of – couples to limit the pace of their childbearing. Deliberate spacing has been associated with the desire of working-class couples to prevent the mother from being burdened with too many young children and thus reducing her income-earning capacities.[51]

Figure 1 has already disclosed that massive parity-specific stopping behaviour did not take place in this early cohort. However, table 4 shows that among "completed" marriage those with strict creeds stopped child bearing later than more lenient ones. Although moderate, this kind of stopping behaviour seems to have preceded the more conspicuous differences between the religions during and after the fertility transition.

[Table 4]

As we have seen, the ASMFR of Catholic and Orthodox Protestant women were similar. In both groups women who married at age 20 and remained married until age fifty, would have experienced an average of 8,9 childbirths (see table 4). However, the actual family sizes of couples were much smaller, due to late starting and infant mortality. The Roman Catholics exhibit the largest difference between their "hypothetical family size" and their actual family size. Not only did they marry later (see table 3), they also experienced relatively high levels of infant and child mortality. Thus, they ended up with smaller families than the Protestants. Obviously, this situation would change the moment sanitary improvements reduced infant mortality as they did from the 1880s onwards.

[Table 5 about here]

[50] Van Bavel and Kok, "Birth spacing in The Netherlands"; Schellekens and Van Poppel, "Religious Differentials in Marital Fertility".
[51] Van Bavel, *Van natuurlijke naar gecontroleerde vruchtbaarheid* and Van Bavel, "Does an effect of marriage duration".

We now move to the last quarter of the 19th century, when Dutch reproduction changed dramatically. Although the fertility of the country remained very high until 1960, when compared to Belgium and Germany, fertility decline clearly started much earlier. Figure 2 offers an impression of the magnitude of the change. Married women born before 1860 had an ASMFR just below Xie's index for natural fertility. Roman Catholic women between age 25 and 34 even reached a fertility level that surpassed the index. Clearly, all categories of women born after 1860 took part in the

[Figure 2 about here]

fertility decline. The fertility of all denominations in this later period is much lower than Xie's index, and the Dutch population seems to be divided in two subgroups. Roman Catholics and orthodox Protestants are characterized by relatively high fertility - the conservative doctrine prohibiting contraceptive practices seems to have worked - while Liberal Protestants and mixed marriages have limited their fertility significantly. They already display the concave shaped ASMFR that is indicative of parity specific birth control.

[Table 6 about here]

The ASMFR does not inform us of the starting and stopping behavior of the couples included in our analysis. Still, the total fertility realized is the result of the ASMFR combined with the ages at which women start and end their reproductive career. From Table 6 we learn that among Catholics and orthodox Protestants marriage restriction was maintained relatively late. Their age at first childbirth was two years higher than among the mixed couples, considered to be relatively independent from church doctrines. Examining age at last birth, again we find striking differences. Although all women studied seem to stop having children some ten years before biological fecundity ends, this is clearly more the case for liberal Protestants and mixed marriages than for Roman Catholics. In the end, then, the period in their life span that was dedicated to reproduction differed markedly. Roman Catholic women used their reproductive possibilities almost two years longer than their liberal Protestant colleagues.

When we look at the number of children surviving until age 5, we find completed family size closely related to reproductive period. The order from high to low number of children is exactly as described already in many studies: Roman Catholic, Orthodox Protestant, Mixed Catholic-Protestant and Liberal Protestant. The social and economic development of Dutch society in the period studied now is evident. In the cohort of women born before 1860, completed family size was heavily influenced by infant and childhood mortality. When sanitary improvements reduced mortality at young ages markedly, completed family size much more closely reflected the ASMFR and reproductive period.

Findings for Taiwan

Total Marital Fertility

To create samples as ethnically homogeneous as possible, we restrict group membership to married women who had both a birth mother and spouse whose registered provenance/ethnicity was not known to differ from their own (which almost always followed the registered provenance of the father). Women adopted by a foster parent were included in the group of the foster parent if they married a spouse whose registered provenance did not differ from that of the foster parent. Thus individuals who were the product of mixed

marriages, or who married across ethnic lines have been excluded from the samples used to test for ethnic differences in this paper. To be sure, mixed marriages deserve study in their own right, but for the present paper it was thought that comparison of homogeneous groups would be most likely to bring out cultural differences.

Analysis of ethnic differences in marriage patterns in Taiwan is complicated by the important effect the form of marriage has on the standard demographic measures. We distinguish three main categories of marriage: major, minor and uxorilocal. Major marriages are those which bring an adult bride into the home of an adult groom. Major marriages are the culturally ideal and most prestigious form of marriage in the Chinese kinship system as it was practiced in Taiwan. Minor marriages were those which result from the adoption of a young girl at an early age for the purpose of matching her to her foster parents' son. Such marriages are also known as little daughter-in-law marriages. Both the major and the minor marriage forms are viri-patrilocal, in that they result in residence of the married couple in the groom's parents' household. The third type is uxorilocal marriage, which brings a groom into the household of his bride's parents. Uxorilocal marriages are attractive alternatives for parents who have failed to raise an adult male heir; by bringing in a son-in-law for a daughter, parents can extend their family through the daughter's sons.

In a large corpus of work combining ethnographic studies and data from the household registers, Wolf has documented important demographic differences among the forms of marriage in the late 19th and early 20th centuries.[52] Minor marriages when the age at adoption is very young had lower fertility, higher rates of adultery and divorce, and earlier ages at marriage than major and uxorilocal marriages. Uxorilocal marriages had higher rates of divorce and higher male age at marriage than major marriages. Because of the influence such differences may have on fertility, form of marriage must be controlled for in our comparisons of ethnic and locality groups.

We begin our exploration of differences in fertility by comparing the summary measure of total marital fertility ("TMFR") for our six locality and ethnic groups. See Figure 3 and 4. They say that consistent differences between the six groups do not exist. In both cohorts the Jibei Plains Aborigines and Danei Plains Aborigines have both the highest and lowest fertility.

[Table 7 about here]

Does the conclusion that there are no significant differences between ethnic groups hold when we differentiate form of marriage? (See Table 7) In all the groups major marriage is the most frequent form, and among the Han minor marriages are, excepting Danei, more frequent than uxorilocal marriages. Minor marriages were rare among the two Plains Aborigine groups and are omitted for that reason.

We divide the sample into two cohorts, one born before 1/1/1896 and one born after 1/1/1896. Both the early and later born cohorts are sizeable, come close to constituting halves of the total sample, and contain some women whose births were fully observed for their entire reproductive period. Fertility rates are known to have risen and mortality to have fallen over the period the registers were compiled, from 1906 to 1946.[53] We control for the compositional and period effects by dividing our sample into birth cohorts who experienced similar rates of fertility and mortality as they aged. Distinguishing the two cohorts also enables us to detect changes in the behavior of our comparison groups over time. If ethnic-cultural factors effected

[52] Wolf and Huang, *Marriage and Adoption in China*; Wolf, *Sexual Attraction and Childhood Association.*
[53] Pasternak, *Guests in the Dragon*, 90.

fertility levels among our groups, these effects should endure temporal changes that are not themselves cultural.

Table 7 presents the number of births, persons years, and the total marital fertility rates for our locality and ethnicity groups by form of marriage for the two cohorts. For all groups and forms of marriage total marital fertility increased significantly from the earlier to the later born cohort, which suggests a significant impact from improvements in health and nutrition by the latter part of the Japanese period, a topic beyond the scope of this paper.

We direct our attention first to the *major* marriages among the plains Aborigines. The Jibei plains Aborigines had the highest total marital fertility in both cohorts, while the Danei plains Aborigines had the lowest in the earlier born cohort and one of the lowest in the later born cohort. The age specific rates show that the rates for the Jibei plains Aborigines are significantly higher than those for Danei especially from age 30. Interestingly the fertility of the Danei plains Aborigines fell below that of the Danei Hoklo in the early cohort and surpassed them in the later cohort, when the Danei Hoklo ranked lowest. The sharp contrast between the Jibei and the Danei plains Aborigines suggests that the level of fertility in these groups owes little to shared cultural factors (female status, gender division of labor, courtship practices, etc.), and much more to factors affecting health, nutrition, standard of living, and disease, etc.

The "footbinding" hypothesis that predicts plains aborigine women to have lower fertility than Hoklo, is controverted by the Jibei fertility rate in both cohorts and the Danei plains aborigine fertility rate in the later born cohort. The Siraya cultural premises that we speculated might have lowered natural fertility also appear not to have had much impact on the Jibei plains Aborigines .

The "standard of living" hypothesis is initially confirmed by the higher fertility of the Jibei plains Aborigines compared to the Danei plains Aborigines in both cohorts. But what are the implications for the standard of living hypothesis of the comparison between the Danei plains Aborigines and the Danei Hoklo? Presumably the relative poverty and its depressing effect on the fertility of the Danei plains Aborigines compared to their Hoklo neighbors was a consistent feature of the entire period, but by the later cohort plains Aborigine fertility is higher than that of Hoklo in Danei. Infant mortality complicates the implications we draw from simple findings of higher fertility; is the higher fertility the product of higher standards of living or higher rates of infant loss? Our expectation from island wide trends is that the rate of infant loss experienced by mothers would decline slightly from the early born cohort to the later born cohort; thus we would not expect rising rates of infant mortality to have caused the rise in fertility between the cohorts. But we need an independent measure of infant mortality to begin to sort out the degree to which differences in infant mortality are affecting fertility. In sum, we will need much more detailed data to adequately test our initial hypothesis.

Among the Han the Zhubei Hoklo rank highest in both cohorts in major marriage fertility, while the Zhubei Hakka moved up from lowest to next lowest by the later cohort. But the hypothesis that absence of footbinding would lower Hakka fertility is dealt a blow by the Lungtu Hakka, who had higher fertility than both the Zhubei Hakka and the Zhubei Hoklo.[54] Thus low major marriage fertility is very unlikely to be a cultural feature of Hakka fertility.

We turn next to *minor* marriages. Certainly there is no ethnic patterning in the case of minor marriage, as the Zhubei Hoklo and Hakka both rank lowest and next lowest in one or the other of the two cohorts. This suggests that common locality rather than different ethnicity is a more important factor affecting fertility levels.

With respect to *uxorilocal* marriages, we find that Jibei plains Aborigine marital fertility is the highest among our groups in both cohorts, and higher than major marriage

[54] Pasternak, *Guests in the Dragon*, 92.

fertility in Jibei. While Danei plains Aborigine fertility in uxorilocal marriages is only middling among our groups, it is always higher than Danei plains Aborigine major marriage and higher than Danei Hoklo major and uxorilocal marriages. We would expect that female power would be greatest in uxorilocal marriages where the bride does not come under the authority of her mother-in-law. Thus if female status and power within the family is playing a role in determining plains Aborigine fertility levels, it appears that role is to increase rather than reduce fertility, contrary to the footbinding and related hypotheses we discussed above.

In sum, our initial overview of marital fertility by locality, ethnicity, and marriage form, has revealed a considerable amount of variation within localities and ethnic groups and over time. The initial speculative hypotheses that we culled from the literature, such as the footbinding hypothesis, and the standard of living hypothesis, have all been controverted by at least a few cases and no strong ethnic pattern has emerged in level of total marital fertility.

However, to assess the relation between ethnic identity and the local structural position or social status of a group (e.g., as the locally dominant numerical majority), we further considered marital fertility by ethnicity and locality (see Table 8) The category of Danei pools plains Aborigine data from across different structural situations across an entire township – that is, it pools data from the village of Toushe, where plains Aborigines were the numerical majority locally, with villages where plains Aborigines were numerical minorities, ranging from very small to significant local populations. (In contrast, Jibei is a village.) Consequently, we considered lower locality levels within Danei. Here, in three out of four comparisons (for women born before 1896 in Toushe and for women born on or after 1896 in both Toushe and Jibei), when Hoklo were the local numerical minority, they had lower fertility. The small numbers and the further pooling of the rest of Danei (including the village of Wutou, where plains Aborigines were a sizeable and influential minority) preclude definitive conclusions but these data suggest that, whereas ethnicity alone is clearly not a good predictor of fertility, ethnicity when combined with consideration of local-level structural relations may be interesting avenue for further investigation.

[Table 8 about here]

In general, our task is to determine whether cultural differences associated with ethnicity in Taiwan have a significant impact on demographic indicators of fertility in ways analogous to the differences found between Catholics and Protestants in Europe. In the European case, groups with religious ideologies specifically addressing questions of childbearing and marital sexuality demonstrate contrasting levels and patterns of fertility. Thus the assumption that these ideologies shaped reproductive behavior and attitudes sufficiently to have produced the fertility differences may well be warranted. There was no similar ideological or behavioral cleavage in Taiwanese society, however. The Taiwan ethnic groups demonstrate some variation by locality and by whether they were the local dominant ethnic group (which may be class related) but there is no clear ethnic pattern to fertility. These results suggest that either there are not such cultural differences between these ethnic groups, which is supported by ethnographic evidence[55], or cultural differences here are not sufficient to have shaped reproductive behaviour and produced the fertility differences seen.

While we have not uncovered stark contrasts among the Taiwanese ethnic groups in total marital fertility, we cannot rule out the possibility of differences operating at finer levels of distinction though with only minor effect on total fertility. In the following sections we will pursue more detailed measures in an attempt to discern ethnic patterns.

[55] Chuang, *Chia-tsu yu hun-yin*; Brown, *Is Taiwan Chinese.*

Marriage Form and First Births: Age at First Birth and the First Birth Interval

The distribution of marriage types by locality and ethnic group varied widely across Taiwan, as can be seen in Table 9. Most striking is the extremely low proportion of first marriages of the minor type among the plains aborigines of Danei and Jibei. Minor marriage may have been nearly absent among plains Aborigines, but it also varied widely in frequency among the localities of Taiwan. That differences between Hoklo and Hakka ethnicity do not explain these variations among Han is evident from our data: the highest frequencies of minor marriage occur among the Hoklo (19.9 %) and Hakka (27.3 %) of Zhubei. The high frequency of minor marriage among Zhubei Hakka contrasts greatly with the Hakka of Lungtu, where the low frequency of minor marriage (from 1.9% to 4.2% of marriages) more nearly resembles our plains Aborigine frequencies (Pasternak 1983: 50). The Hoklo of Danei (4.2 % minor), on the other hand, rank at the low end of the variation in minor marriage frequencies in Taiwan in our sample, but do not appear to be unique in that respect among Taiwanese of south Taiwan. The wide variation in the frequency of minor marriage and female adoption among Han Taiwanese remains one of the more puzzling aspects of the Taiwanese marriage pattern. Some have suggested that this north-south differentiation among the Han may be related to historically high rates of intermarriage between Han and plains Aborigines in the south, while Shepherd suspects higher infant and child mortality in the south lowers the possibility of minor marriage there.[56]

[Table 9 about here]

The Danei (19.8 %)and Jibei (13.6 %) plains Aborigines are also distinctive in having the highest frequencies of uxorilocal marriage among the communities in our sample. But these frequencies are not as high as some reported for Taiwanese Han communities (e.g. Zhongshe Hoklo at 39.4%).[57] Thus this evidence alone is not sufficient to identify a high frequency of uxorilocal marriage as distinctive of plains Aborigine marital culture. While the frequencies of minor and uxorilocal marriage vary widely, their combined numbers in all sites significantly reduce the proportion of major marriages (least among the Danei Hoklo and Jibei plains Aborigines, most among Hoklo and Hakka in Zhubei). Let us turn to some of the consequences of this variation for the demography of fertility among the various ethnic groups.

Age at marriage is a key determinant of fertility among women in societies that attempt to restrict childbearing to married women. Large differences in average ages at marriage and proportions married are a staple of contrasts between European and Asian societies. A woman's age at first birth is a function of her age at marriage and the length of the first birth interval (from marriage to first birth). Table 10 presents these indicators for women in their first marriages who were not pregnant at marriage. No data are reported for minor marriages among the plains Aborigines of Danei and Jibei where samples are extremely small.

[Table 10 about here]

[56] E.g., Wolf, *Sexual Attraction and Childhood Association,* 54-55; Brown, *Is Taiwan Chinese,*155-157.
[57] Pasternak, *Guests in the Dragon*, 53.

The average ages at marriage shown for the various ethnic and locality groups in the table fall within a narrow range from 18.0 to 19.0 years. Once again, variation among the communities is determined less by ethnicity than by form of marriage and locality. The overall average age at first marriage is lowest among the Danei plains Aborigines (18.1), and the Hakka (18.1) and Hoklo (18.0) of Zhubei, bringing together representatives of the three ethnic groups at the low end of the spectrum. The highest overall averages are among the Jibei plains Aborigines (19.0) and the Danei Hoklo (18.9). Thus there is little evidence of an ethnic standard for Hoklo or for plains Aborigines at the level of group averages. The similarity between the two Zhubei groups in average age at marriage disguises differences by form of marriage. The average age at uxorilocal marriage is the same for the two plains Aborigine groups of Danei and Jibei but any sense of ethnic uniformity is undermined by their average ages at major marriage which are a full year apart. Age at minor marriage is consistently low, but age at uxorilocal marriage is in two cases higher (Zhubei Hoklo, Danei plains Aborigine) rather than lower than age at major marriage.

The length of the first birth interval determines the wait from the marriage to the arrival of the first child (brides pregnant at marriage have been removed from the sample). The two plains Aborigine groups have the shortest overall average first birth interval, and are also alike in having shorter intervals for uxorilocal marriages than major marriages, a characteristic they share with Zhubei Hakka and Lukang Hoklo. The short birth intervals among the plains Aborigines in Danei and Jibei also cast doubt on any hypothesis that nutritional deficiencies in one of the plains Aborigine groups delayed menarche sufficiently to have impacted the first birth interval.

The longest first birth intervals for all the Han groups are in the minor marriages. This may be attributed both to the younger age of many of the women married in the minor fashion (very near menarche), and the sexual aversion felt for their spouses by those adopted at an early age.[58] In general the first birth intervals reported here are for all marriages lengthy, averaging around two full years (and longer than the *median* lengths reported by Pasternak for Lungtu of around 15 months).[59]

Taiwanese women who failed to produce a birth early in their marriages had an alternative open to them that was not available to their European counterparts. Childless Taiwanese women could adopt a child in anticipation of birth; this possibility held for Hoklo, Hakka and plains Aborigines alike.[60] A look at the community averages in the table reveals that the Danei Hoklo were least likely to adopt before birth, while the Zhubei Hoklo were the most likely (closely followed by the Zhubei Hakka). The plains Aborigine averages fall midway along the spectrum, with adoption more frequent in Danei than for Lukang Hoklo, and less frequent in Jibei (though adoption in major marriages in Jibei was more frequent than in major marriages in Lukang). Again we find a stronger pattern of variation by locality than by ethnicity, pointing to wide differences in adoption markets by locality (cf. Pasternak, who documents low rates of adoption among Lungtu Hakka).[61] Frequencies of adoption also varied greatly by form of marriage. The proportions of women with an adoption before her first birth were in every Han group highest for those in minor marriages, where the average first birth interval was also the longest.

When we examine the data by age at first birth and by length of first birth interval (not shown here), we discover that for all marriage types the higher the age at first birth, and the longer the first birth interval, the more likely women were to have adopted a child prior to their first birth. This relationship holds true for the plains Aborigines of Danei and Jibei as

[58] Wolf, *Sexual Attraction and Childhood Association.*
[59] Pasternak, *Guests in the Dragon*, 110.
[60] Wolf and Huang, *Marriage and Adoption in China*, 242ff.; Brown, *Is Taiwan Chinese*, 87-88.
[61] Pasternak, *Guests in the Dragon*, 117-118.

well as for the Han communities; 46.2% and 50% of plains Aborigine women in Danei and Jibei who had first birth intervals greater than four years first had an adopted child (the comparable rates are 17% of Danei Hoklo, 60% of Zhubei Hoklo, 43.1% for Zhubei Hakka, and 47.6% for Lukang Hoklo). This can be interpreted as an expression of growing anxiety about the bearing of children by couples whose old age security depended on the production of surviving offspring. The increasing propensity to adopt as the first birth interval lengthens belies claims that long first birth intervals were intentional means of birth control (Campbell et al. 2002).

Ages at first birth in our sample groups ranged from 19.2 (Zhubei Hakka uxorilocal marriages) to 21.1 (Danei Hoklo major marriages), which is a narrower range than ages at marriage, which ran from 16.8 (Zhubei Hakka minor marriages) to 19.1 (major marriages for Jibei plains Aborigines and Danei Hoklo). Much of that narrowing is due to the long birth intervals in minor marriages which despite the early age at marriage delayed the age at first birth in minor marriages; this was sufficient to prevent minor marriages having the earliest age at first birth except among the Zhubei Hoklo.

Our analysis of age at marriage and first birth for the sample of brides pregnant at marriage by locality, ethnic group and form of marriage yield comparable results. The patterns of bridal pregnancy reveal no ethnic uniformity, beyond the absence of minor marriage among the plains Aborigines.

Completed Marriages: Age at last birth, completed fertility, and infant and child mortality.

To study the beginning of marriage and childbearing we were able to use a sample of women who were under observation for the relatively brief portion of their marriages from age at marriage to age at first birth. To study the fertility of marriages over their full length, especially when the cessation of childbearing is of interest, requires a set of "completed marriages".[62] Comparisons of completed marriages require excluding marriages that are only partially observed through their history, and marriages disrupted by death or divorce before the end of a woman's reproductive period. For this paper we define the set of completed marriages as those in which women remained in first marriages and were continuously under observation from age at marriage (no later than the 30th birthdate) to age 46. (The condition of marrying before age 30 ensures that a minimum of 15 years of married life is observed for each marriage.) These are stringent conditions. They have the effect of severely reducing the number of marriages in our sample (see Table 11). In many ways the few marriages that survive to fulfill these conditions are clearly not "typical" marriages. Many more marriages in Taiwan were broken by death or divorce. Marriages are also eliminated from the sample because observation was interrupted by migration, either to areas outside the study area before the marriage reached completion or into the study area after the marriage was initiated.

In the case of the Taiwan household registers that were open only from 1906 to 1945, these stringent requirements also mean that the sample of completed marriages is restricted to a narrow birth cohort. This sample is thus restricted to women born before 1/1/1901 who reach age 46 by 12/31/45, the end of the register period. In addition, all marriages in the sample must occur after 1/1/1906 if they are to be fully observed. As average age at first marriage is 19, most of the women marrying after 1906 will have been born after 1886. Of women born before 1886, only those marrying above the average age at marriage and after 1/1/1906 will enter the sample. The bulk of the women in this sample thus come from a much narrower cohort than that used in the tables for first marriages and first births above where later marrying women enter the sample. Because fertility rates are known to have risen and

[62] Knodel, *Demographic Behavior in the Past,* 407.

mortality to have fallen from 1906 to 1946, limiting the sample to a narrow birth cohort has the advantage of minimizing compositional and period effects, but this benefit comes at the heavy price of a reduced sample size .

[Table 11 about here]

The smallness of the sample of completed marriages also constricts our ability to fully compare the less frequent forms of marriage. The number of minor and uxorilocal marriages surviving in our sample is small not just because they were less frequent than major marriages among first marriages, but also because divorce rates in minor and uxorilocal marriages were higher than in major marriages.[63] Thus for the analysis of completed marriages we will not separately compare minor and uxorilocal marriages. In the case of our plains Aborigine populations we are still left with very small samples of major and total marriages, which makes the results for these groups less reliable. Our criteria maximizing the homogeneity of the ethnicity samples remain the same as above.

Presented in Table 12 are the ages at first and last birth, the length of the reproductive period (years from first to last birth), the average closed birth interval, and the average number of births per woman for our ethnic groups. We have already discussed age at first birth using our larger sample above, and will focus here on the cessation of childbearing and the overall fertility of our completed marriages.

The youngest age at last birth and the shortest average reproductive period is found among the Danei plains Aborigines in major marriages. This contrasts sharply with the Jibei plains Aborigines in major marriages who have the oldest age at last birth and the longest reproductive period in our sample. The same contrast is found between these two groups in average closed birth interval (longest for Danei plains Aborigines and second shortest for Jibei plains Aborigines) and in average births per woman (lowest for Danei and highest for Jibei). Clearly there is no single cultural pattern dictating fertility and length of the reproductive period among the plains Aborigines in our sample. Similarly, in the case of the Zhubei Hakka, except for age at last birth (which is high but not as high as Jibei) the indicators for reproductive period, birth interval and births per woman all fall in the middle of those from the Hoklo groups, and most often are closest to those of the Zhubei Hoklo. Thus, these measures of fertility also fail to identify a distinctive Hakka – Hoklo difference.

In western Europe, as the Dutch data documents, less breastfeeding and higher infant mortality among Catholics shortened birth intervals and contributed to higher fertility compared to Protestants. No differences concerning length of breastfeeding period are known to distinguish either ethnic groups or localities in Taiwan. Average birth intervals in our sample groups are long and variation among groups is most likely related to different levels of infant mortality, as we will discuss shortly. The lack of uniform patterns distinguishing our ethnic groups undermines claims that ethnic differences, for example gender roles and the presence of footbinding, can explain differences in reproductive behavior among Taiwanese groups. So once again, on indicators that regularly discriminate between Protestants and Catholics in European cases, the Taiwanese ethnic groups are more likely to vary by locality than by ethnicity.

[Table 12 about here]

[63] Wolf, *Sexual Attraction and Childhood Association*, 106-107.

The average births per woman for completed marriages confirms our finding using the total marital fertility rates that Jibei plains Aborigines have the highest fertility but the ranking of the other groups changes, with Danei plains Aborigines now at the bottom and Lukang Hoklo next to Jibei at the top. In all our groups, the average births per woman is higher for all forms of marriage combined than for major marriages. This is somewhat surprising, given our expectation that the low fertility of minor marriages would depress the overall average compared to major marriage, at least for Han groups where minor marriages are numerous. Measures of total marital fertility which make fuller use of the register sample compared to measures based on completed marriages which discard so many cases, show higher fertility in major and uxorilocal marriages. The divergence may also be a product of a selection effect operating on our sample of completed marriages: higher rates of divorce in uxorilocal and minor marriages have eliminated more low parity marriages from those samples than divorce has eliminated from the major marriage sample. [We see this in the percentages having three or fewer births in the second table below.]

In Table 12 we see that Jibei (7.68) and Lukang (7.52) have significantly higher births per woman than the other groups (the lowest number of births are found in major marriages of Danei plains Aborigines, 5.41). Table 13 shows the number of children and the number of sons surviving to a fifth birthday per woman, along with measures of infant and child mortality. The high fertility in Jibei and Lukang is greatly reduced by correspondingly high rates of infant and child mortality. The reduction is so great in the case of Jibei (where child mortality is as high as infant mortality) that its number of surviving children put it near the bottom of the groups, along with Danei plains Aborigines. As a result of mortality, the range of numbers of surviving children is much narrower, from 4.06 (Danei plains Aborigines) to 5.72 (Zhubei Hakka) compared to the numbers of births. High rates of infant and child mortality, by speeding the end of breastfeeding and its contraceptive effect, play a role in increasing fertility in Jibei and Lukang. Plains Aborigine women in Jibei and Hoklo women in Lukang combine the shortest closed birth intervals with slightly longer reproductive periods to make possible a higher number of births. The common experience of high infant and child mortality, despite ethnic difference, is what drives up fertility in these two populations. At the other extreme, the Zhubei Hakka stand out for having particularly low rates of child mortality, which other evidence suggests may indeed indicate some sanitary or other health practices that are distinctively Hakka.

[Table 13 about here]

Table 14 presents for completed marriages the proportions of women who have three or fewer births and who had nine or more births. These are women whose fertility significantly diverged from the average. An overreliance on measures of central tendency in fertility measures obscures the important role of women at the extremes in many discussions of fertility, which tends to give the impression that an overwhelming majority of women were at or near the average number of births. This table seeks to rectify that shortcoming by documenting the large proportion of women whose fertility substantially exceeded or fell well short of the average. In eight of our twelve groups, from 46 % to 64 % of women were at the extremes of the parity distribution. Particularly striking are the large proportions of women who bore nine or more children in Jibei and Lukang, where we have seen high infant mortality pushed up completed fertility. Also striking is the very low proportion of Jibei women in completed marriages who had three or fewer births, which may be an indication of the great pressure high rates of infant mortality put on such women. Nearly as striking are the

low proportions of Danei plains Aborigine women who had nine or more births, which relates to the low fertility of this group of completed marriages. As a result, the four groups where smaller overall proportions fell into the extremes were all from Danei and Jibei plains Aborigines (these are also our smallest samples of only 24 and 31 completed marriages).

[Table 14 about here]

As noted above in our discussion of adoption at the beginning of childbearing, adoption was an option open to Chinese women with unsatisfactory fertility that was not available to European women. We interpret adopting a child after the last birth not only as evidence that families were not satisfied with the size or sex composition of their offspring sets but also that stopping may not have been voluntary. Certainly adding another mouth to feed to the family contradicts the notion that early stopping is a deliberate means of limiting family size. The strong son preference of the Taiwanese family might lead us to expect that more boys would be adopted than girls, but it also meant that few families gave up boys for adoption. Thus adoptions were in fact overwhelmingly female. Adopted daughters could serve as son substitutes if no sons survived and an uxorilocal marriage could be arranged to continue the family. Foster daughters could also serve as little daughters-in-law, and be married at maturity in a minor marriage to a son of the family at little expense and much potential gain to the domestic control exercised by the mother-in-law cum foster mother. In larger families, a surplus daughter might be sent out at the same time a foster daughter was brought in; this was a means of removing unwanted daughters and replacing them with little daughters-in-law in preparation for an anticipated minor marriage to a son. In these circumstances adoptions resulted in no net gains in numbers of children. Our tables report any adoption occurring after the last birth regardless of sex.

In all the groups, substantial proportions of low parity women (having three or fewer births) adopted after their last birth. And in all the groups except Jibei, substantial proportions of the families adopting after a woman's last birth were for low parity women. Jibei is the exception because there were so few low parity women in the sample of completed marriages in Jibei (two women in a sample of 31). Adoption was a well established custom in both the Jibei and Danei plains Aborigine groups, as we saw above with respect to adoptions preceding first birth, and the high rates of adoption among the low parity plains Aborigine women of Danei confirm that pattern.[64]

These patterns strongly suggest that families with low parity women, far from being satisfied with the size and sex composition of their offspring set when stopping childbearing so early and with so few children, were in fact strongly dissatisfied. Reinforcing this conclusion is the number of children ever adopted (without regard to timing of adoption) per low parity woman. The highest numbers of adoptions occur for women stopping at the youngest ages, having the lowest number of births, and the lowest number of surviving sons. Thus the number and timing of adoptions cast serious doubt on notions that early stopping can be interpreted as intentional fertility control. The perspective provided by adoption offered by these tables shows there is little difference between the groups defined either by locality or by ethnicity with respect to desire of low parity women to increase their holding of children.

Conclusions and discussion

The goal of this paper was to establish what fertility differences existed, if any, between subpopulations in the Netherlands and Taiwan. The subpopulations chosen represent religious

[64] Brown, *Is Taiwan Chinese*, 84-88.

and ethnic categories that, according to most authors, form basic identification for the actors involved as well as for the keepers of the population and household registers. Whenever possible we took into account the confounding effects of socio-economic and regional influences. The results are both surprising and interesting, because they show that cultural identifications can influence reproductive behavior strongly or not at all. We will first present them for the two countries separately and then discuss the importance of the comparison.

The reproduction of Dutch couples between 1880 and 1960 had two characteristics that distinguished them from their counterparts in the neighboring countries. First of all, the national average of fertility was markedly higher. According to E.W. Hofstee we can find the reason for this in the pervasive religious character of the country. The power of "organized confessionalism" was such that even non-religious inhabitants were heavily influenced by the strict doctrine of the Roman Catholic and Orthodox Protestant churches.[65] This already hints at the importance of religion when trying to understand Dutch fertility.

To be sure, this idea is supported convincingly by the differences between the major denominations within the Netherlands. The onset of fertility decline is visible when comparing the ASMFR for the pre-decline and post-decline eras, but the rank order of the denominations does not change. The two orthodox religious groups (Roman Catholics and Orthodox Protestants) consistently exhibit a higher fertility when compared to their less strict colleagues. The fertility decline appears to have deepened the denominational differences between orthodox and liberal groups to the extent that Liberal Protestant women and women from mixed marriages of the second cohort already had a concave shaped ASMFR (indicating deliberate fertility limitation).

Denominational differences also affect the beginning and the end of the reproductive career. In the cohorts born before and after 1860, Roman Catholic and Orthodox Protestant brides start bearing children at a later age than Liberal Protestants. The only remarkable difference between the cohorts is to be found for couples of mixed religion. In the first cohort they were the last to start having children, while in the second cohort they were the first. The end of the reproductive period comes later for the strict religions too. Where contraception is not allowed, this is to be expected. Still, even orthodox couples stop having children five years earlier in the later cohort than they did in the earlier cohort. Not surprisingly, the influence of religion is to be found also in the completed family size of our couples. In the first cohort this effect is biased by differences in infant and childhood mortality. Nonetheless, this finding is another indication of the all pervasive influence of religion on society: fertility, breastfeeding and sanitation habits all differentiate according to denomination.

Our main conclusion is in line with the finding of other authors in the Netherlands. If one wants to predict the fertility of a Dutch couple in the 19th and early 20th century, it is to religious denomination that one must turn. A relatively new conclusion is that the differentiation between denominations was already visible long before the *pillarization* started.

In Taiwan, we have searched for systematic ethnic patterning in childbearing using measures as diverse as total marital fertility, age at marriage and first and last birth, proportions of pregnant brides, proportions adopting before first birth and after last birth, length of birth intervals, and rates of infant and child mortality. Our overall conclusion with respect to our main question is a negative one. Ethnicity in Taiwan does not appear to have a significant impact on demographic indicators of fertility in ways analogous to the differences found between Catholics and Protestants in the Netherlands. We do not claim that there were no significant cultural differences characterizing marriage and reproductive behavior among

[65] Hofstee, *Korte demografische geschiedenis*, 58-62.

these groups; we merely assert that such differences as existed did not result in distinctive levels and patterns of marital fertility among the ethnic groups. Differences were as likely to be explained by appeal to factors relating to locality and period as to ethnicity.

Marriage and reproduction are phenomena of major importance in human life, in every society and historical period. They constitute a very sensitive instrument to measure the impact of events and processes experienced by the population studied. Historical demographic research has repeatedly shown close links between demographic behaviour and environmental and economic factors, as well as purportedly cultural factors such as ethnicity and religion. We expected, therefore, that the fertility differences between "cultural" subgroups of the population of Taiwan and the Netherlands would demonstrate the importance of the respective group identities. The results are remarkable. Being Dutch in the late nineteenth and early twentieth century implied being a member of one of the strictly organized denominations (in the case of Roman Catholics and Orthodox Protestants) or of less demarcated denominations (Liberal Protestants and others). Being Taiwanese in the first half of the twentieth century implied being aware of the provenance of ancestors, and thus being Hoklo, Hakka or plains Aborigine. Surprisingly, we find that group identity effected nuptiality and fertility in the Netherlands, but failed to do so in Taiwan.

The question to be answered, then, is why, in this important regard, the countries differed. Our data do not allow us to make final statements. The following possible answers, however, may guide future research. Religion in the Netherlands appears to be a much more powerful predictor for fertility than ethnicity is in Taiwan. Issues relating to age at marriage, sexuality, breastfeeding, and contraception were important in distinguishing religious denominations in the Netherlands, and denominational membership thus came to have an important influence on the demographic behavior of members. The same issues never operated as criteria distinguishing the Hakka, Hoklo, and plains Aborigines of Taiwan. Instead, the Taiwanese groups distinguished themselves on the basis of criteria such as provenance, footbinding, language, and patron gods, criteria which did not dictate distinctive fertility outcomes. As it is, we can only conclude that the often invoked differences between ethnic groups in Taiwan are of little significance when studying their demographic behaviour. The Dutch couples in our data not only considered themselves Protestant or Catholic, but acted accordingly. The Taiwanese couples in our data considered themselves Hoklo, Hakka or plains Aborigines, but acted either according to circumstances, or simply as Taiwanese. This, then, takes us back to the hypothesis formulated by McQuillan. The preconditions necessary for group identity (be it religious or ethnic) to influence demographic behaviour were met by Roman Catholics and Orthodox Protestants in the Netherlands, but evidently not by the Taiwanese ethnic groups. Orthodox Protestants and Catholics in the Netherlands were worlds apart in the same small country. With regard to their demographic behaviour, Hakka, Hoklo and plain Aborigines were not.

Figures to Group Identity and Fertility: An Evaluation of the Role of Religion and Ethnicity in the Netherlands and Taiwan

JOHN SHEPHERD, PAN INGHAI, JAN KOK, CLAUDIA ENGEL, THEO ENGELEN, MELISSA BROWN

Figure 1: Age specif marital fertility rates, women born before 1860, by religion of couple

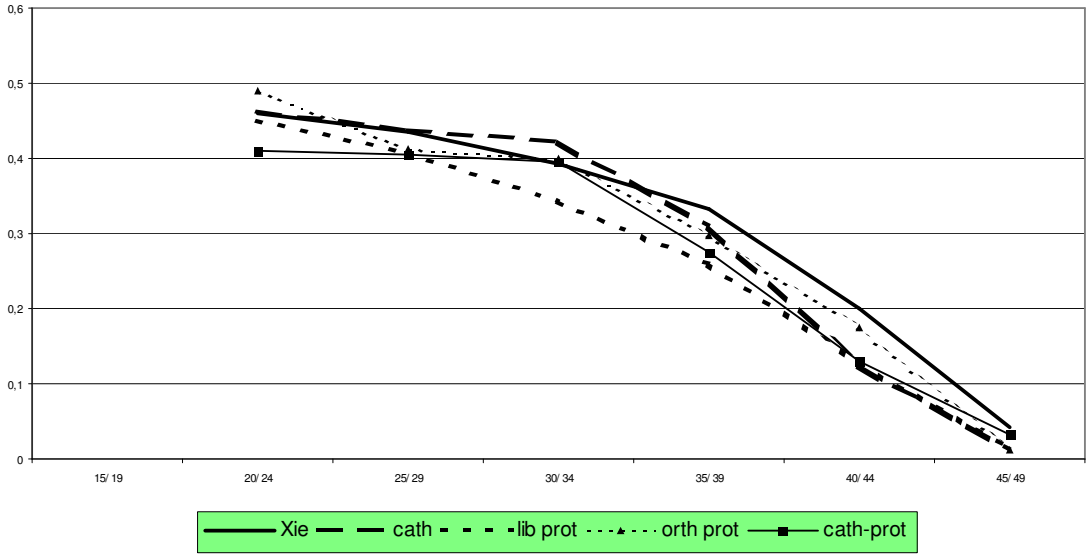
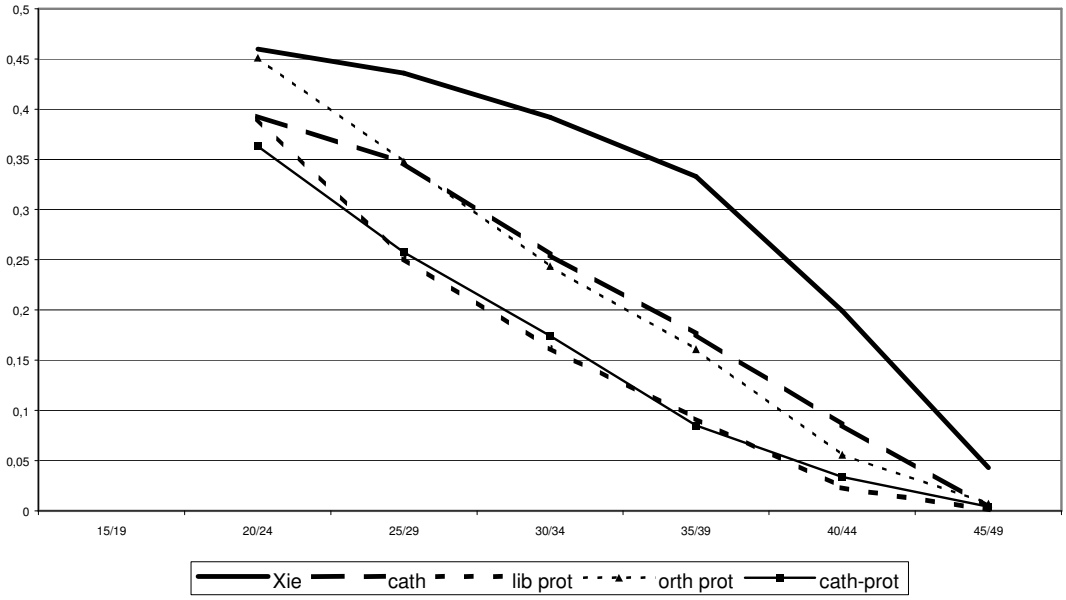


Figure 2: Age specif marital fertility rates, women born after 1860, by religion of couple



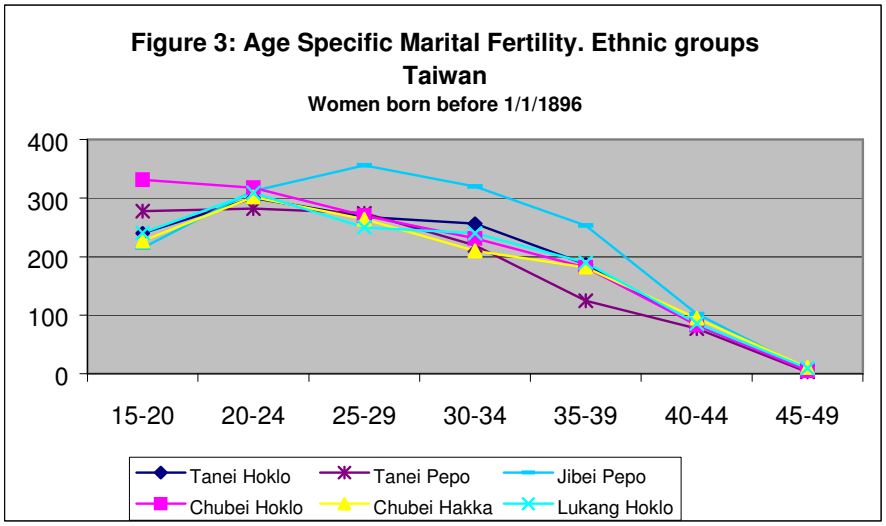


Figure 3: Age Specific Marital Fertility. Ethnic groups
Taiwan
Women born before 1/1/1896
400
300
200
100
0
15-20
20-24
25-29
30-34
35-39
40-44
45-49
Tanei Hoklo
Tanei Pepo
Jibei Pepo
Chubei Hoklo
Chubei Hakka
Lukang Hoklo

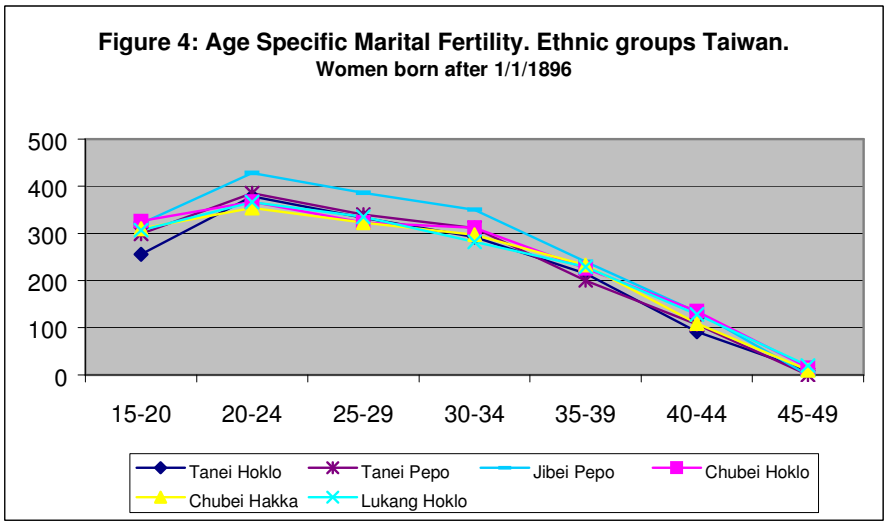


Figure 4: Age Specific Marital Fertility. Ethnic groups Taiwan.
Women born after 1/1/1896
500
400
300
200
100
0
15-20
20-24
25-29
30-34
35-39
40-44
45-49
Tanei Hoklo
Tanei Pepo
Jibei Pepo
Chubei Hoklo
Chubei Hakka
Lukang Hoklo

Tables to Group Identity and Fertility: An Evaluation of the Role of Religion and Ethnicity in the Netherlands and Taiwan

JOHN SHEPHERD, PAN INGHAI, JAN KOK, CLAUDIA ENGEL, THEO ENGELEN, MELISSA BROWN

Table 1: Proportion of Denominations in Dutch Society (in percentages)

	Roman	Protestants			Other	No denomination
Period	Catholics	Total	Dutch Reformed	Calvinists	Denominations	
1849	38	56	55	1	6	0
1899	35	56	48	8	6	2
1947	38	40	31	9	5	17
1960	40	37	28	9	4	18
2000	32	21	14	7	8	40

Source: Dutch Central Bureau of Statistics

Table 2: The Population of Taiwan by Language in Daily Use and Provenance, 1915

Language in Daily	Provenance					
Use*	Fujian		Guangdong		Plains Aborigine	
Hoklo (S. Min)	2,744,566	99.7%	70,543	14.7%	41,281	86.6%
Hakka (Kejia)	6,806	0.2%	407,542	85.2%	766	1.6%
Bango (aborigine)	657	0 %	272	0.1%	5,612	11.8%

Census of 1915, shukei gempyo, zento no bu; Table 10, p.1158-59. A few speakers of Japanese and other Chinese languages are not shown in this table.
*The language classification is clarified in SPCF, p. 95; see also Hashimoto 1973:24 on the use of "Kwangtungese" for Hakka dialect in Japanese publications in Taiwan.
Table reprinted from Shepherd 2001.

Table 3 Age at first child and percentage born within seven months after the marriage, by religion of the couple. Mothers born before 1860, The Netherlands

	Age at first birth: Mother born before 1860	Percentage of first children born within seven months	N
Husband and wife both liberal Protestant	26,8	23,0%	305
Husband and wife both Roman Catholic	28,9	10,8	379
Husband and wife both Orthodox Protestant	26,9	29,9	67
Mixed Catholic-Protestant marriages	29,1	30,3	33

Table 4 Age at last child, by religion of the couple, mothers born before 1860, The Netherlands

	Age at last child	N
Both liberal Protestant	39,1	220
Both Roman Catholic	40,4	273
Orthodox Protestant	40,2	45
Mixed Catholic-Protestant	39,2	25

Completed marriages, mother at least 45 years.

Table 5 Total Age Specific Marital Fertility Rates, percentages of infant and child mortality and number of children surviving to at least age five, by religion of the couple. Mothers born before 1860, The Netherlands

	Total Age Specific Marital Fertility (20-49)	%infant mortality	%child mortality	Surviving children	N completed marriages
Both liberal Protestant	8,04	17,7%	10,1%	4,54	217
Both Roman Catholic	8,89	18,4	12,1	4,36	268
Orthodox Protestant	8,93	15,0	13,7	5,23	44
Mixed Catholic-Protestant	7,07	14,4	13,0	3,79	24

Surviving children counted in completed marriages, mother at least 45 years.

Table 6 Age at first and last child, reproductive period and surviving children by religion of the couple. Mothers born after 1860, The Netherlands

	Age at first child	Age at last child	Reproductive period	Number of children surviving to age 5
Both liberal Protestant	25,7	33,1	7,4	3,24
Both Roman Catholic	26,4	35,6	9,2	4,28
Orthodox Protestant	26,5	35,2	8,7	4,18
Mixed Catholic-Protestant	24,5	32,9	8,4	3,41

Table 7: Total Marital Fertility of Women born before and after 1/1/1896 by locality, ethnicity and marriage type.

Locality and Ethnicity	Women born before 1/1/1896			Women born after 1/1/1896		
	Births	PersonYears	TMFR 15-49	Births	PersonYears	TMFR 15-49
Danei Hoklo	3540	19353	6.67	5983	19942	7.95
Danei Hoklo Major	3012	16554	6.70	4797	15948	7.88
Danei Hoklo Uxor	372	1975	6.90	863	2794	8.60
Danei Hoklo Minor	156	824	6.17	323	1201	7.02
Danei PA	467	2878	6.37	807	2578	8.37
Danei PA Major	384	2451	6.29	619	1954	8.20
Danei PA Uxor	75	389	7.03	175	578	8.79
Jibei PA	621	2848	8.14	635	1829	9.21
Jibei PA Major	519	2456	7.83	477	1353	9.20
Jibei PA Uxor	92	356	8.44	139	375	10.48
Zhubei Hoklo	1324	8335	6.59	2532	8594	8.11
Zhubei Hoklo Major	777	4571	7.10	1678	5440	8.53
Zhubei Hoklo Uxor	168	857	7.59	266	852	8.01
Zhubei Hoklo Minor	379	2907	5.32	588	2302	7.10
Zhubei Hakka	1641	9946	6.26	2619	9276	7.82
Zhubei Hakka Major	935	5701	6.45	1678	5714	8.18
Zhubei Hakka Uxor	162	915	6.98	277	811	9.07
Zhubei Hakka Minor	544	3330	5.87	664	2751	6.89
Lukang Hoklo	1775	10462	6.49	3002	10214	8.19
Lukang Hoklo Major	1272	7548	6.63	2267	7501	8.33
Lukang Hoklo Uxor	169	971	6.55	242	810	8.65
Lukang Hoklo Minor	334	1943	6.10	493	1902	7.29

Table 8: Total Marital Fertility of Women by Ethnicity and Locality

Ethnicity and Locality	Women born before 1/1/1896	Women born on or after 1/1/1896

	Births	Person Years	TMFR 15-49	Births	Person Years	TMFR 15-49
plains Aborigines						
Jibei pA	649	2817.66	8.46	674	1903.54	9.76
Danei pA						
Toushe pA	345	2068	6.54	569	1882.98	8.1
Other Danei pA	129	755.38	6.55	243	709.53	9.42*
Hoklo						
Jibei Hoklo	28	107.8	8.49	43	133.78	8.31*
Danei Hoklo						
Toushe Hoklo	60	411.88	5.05	141	525.84	6.68
Other Danei Hoklo	3516	18419.81	6.89	5835	19308.24	7.93

Women registered as Hoklo but adopted by plains Aborigines are recorded as plains Aborigines. Only marriages where the spouses have the same ethnicity are counted.

* TMFR is for ages 15-44 only, as there were 0 person-years observed in the 45-49 age cohort.

Table 9. Marriages by form of marriage among women continuously observed from first marriage to first birth. Ethnic groups are defined as those born and/or raised, and married within the same ethnicity.

Locality, Ethnicity and Form of Marriage	Number Observed	Form of marriage percentages
Danei Hoklo	1377	100.0
Danei Hoklo Major	1141	82.9
Danei Hoklo Uxor	138	12.1
Danei Hoklo Minor	58	4.2
Danei PA	182	100.0
Danei PA Major	142	78.0
Danei PA Uxor	36	19.8
Danei PA Minor	4	2.2
Jibei PA	132	100.0
Jibei PA Major	110	83.3
Jibei PA Uxor	18	13.6
Jibei PA Minor	4	3.0
Zhubei Hoklo	457	100.0
Zhubei Hoklo Major	316	69.1
Zhubei Hoklo Uxor	50	10.9
Zhubei Hoklo Minor	91	19.9
Zhubei Hakka	587	100.0
Zhubei Hakka Major	372	63.4
Zhubei Hakka Uxor	55	9.4
Zhubei Hakka Minor	160	27.3
Lukang Hoklo	617	100.0
Lukang Hoklo Major	488	79.1
Lukang Hoklo Uxor	35	5.7
Lukang Hoklo Minor	94	15.2

Table 10 : Age at marriage and first birth, first birth interval and proportions adopting before first birth of women continuously observed from first marriage to first birth, excluding brides pregnant at marriage.

Locality, Ethnicity and Form of Marriage	Age at marriage	Age at first birth	First birth interval	Proportions adopting before first birth
Danei Hoklo	18.9	20.9	2.04	2.2
Danei Hoklo Major	19.1	21.1	2.01	1.9
Danei Hoklo Uxor	17.6	19.8	2.23	2.9

Danei Hoklo Minor	17.9	20.2	2.25	5.2
Danei PA	18.1	20.0	1.87	7.1
Danei PA Major	18.0	19.9	1.90	6.3
Danei PA Uxor	18.4	20.0	1.62	8.3
Jibei PA	19.0	20.8	1.82	4.5
Jibei PA Major	19.1	20.9	1.81	5.5
Jibei PA Uxor	18.5	20.1	1.62	0.0
Zhubei Hoklo	18.0	20.0	1.96	8.8
Zhubei Hoklo Major	18.1	19.9	1.82	7.9
Zhubei Hoklo Uxor	18.8	20.7	1.91	10.0
Zhubei Hoklo Minor	17.4	19.8	2.45	11.0
Zhubei Hakka	18.1	20.3	2.19	8.7
Zhubei Hakka Major	18.8	20.8	2.02	5.6
Zhubei Hakka Uxor	17.6	19.2	1.59	5.5
Zhubei Hakka Minor	16.8	19.5	2.78	16.9
Lukang Hoklo	18.5	20.5	1.99	6.5
Lukang Hoklo Major	18.8	20.7	1.90	5.1
Lukang Hoklo Uxor	17.8	19.6	1.79	8.6
Lukang Hoklo Minor	17.3	19.8	2.51	12.8

Table 11: Women remaining in first marriages and continuously under observation from age at marriage (before age 30) to age 46 by locality, ethnicity and form of marriage.

Locality, Ethnicity, Form of Marriage	Number of completed marriages observed	Number zero parity	Pct. of non-zero parity completed marriages
Danei Hoklo	239	6	97.5
Danei Hoklo Major	202	6	97.0
Danei PA	24	1	95.8
Danei PA Major	18	1	94.4
Jibei PA	31	0	100.0
Jibei PA Major	27	0	100.0
Zhubei Hoklo	92	7	92.4
Zhubei Hoklo Major	65	6	90.8
Zhubei Hakka	101	7	93.1
Zhubei Hakka Major	71	7	90.1
Lukang Hoklo	119	8	93.3
Lukang Hoklo Major	86	6	93.0

Table 12 : Women remaining in first marriages and continuously under observation from age at marriage (before age 30) to age 46 by locality, ethnicity and form of marriage: age at last birth, birth intervals, and births per woman.

Locality, Ethnicity, Form of Marriage	Age first birth*	Age last birth*	Reproductive Period~	Avg. Closed Birth Interval	Births per Woman*
Danei Hoklo	21.47	37.62	16.15	2.81	6.74
Danei Hoklo Major	21.65	37.43	15.79	2.81	6.63
Danei PA	20.57	36.09	15.52	2.97	6.22
Danei PA Major	20.94	34.20	13.25	3.00	5.41
Jibei PA	21.41	38.15	16.74	2.51	7.68
Jibei PA Major	21.69	38.38	16.69	2.52	7.63
Zhubei Hoklo	21.18	36.76	15.57	2.71	6.74
Zhubei Hoklo Major	21.36	36.26	14.89	2.65	6.61
Zhubei Hakka	21.44	37.96	16.52	2.77	6.96

Zhubei Hakka Major	22.25	37.77	15.52	2.68	6.80
Lukang Hoklo	20.63	37.23	16.60	2.55	7.52
Lukang Hoklo Major	21.22	37.01	15.79	2.43	7.49

***Excludes zero parity women. ~the period from first to last birth in years.**

Table 13 :Women remaining in first marriages and continuously under observation from age at marriage (before age 30) to age 46 by locality, ethnicity and form of marriage: surviving children and sons, infant and child mortality.

Locality, Ethnicity, Form of Marriage	Births per Woman*	Surviving children per woman*~	Surviving sons per woman*~	Infant deaths per 100 births	Child deaths (ages 1-4) per 100 surviving infants
Danei Hoklo	6.74	5.18	2.61	11.45	13.17
Danei Hoklo Major	6.63	5.13	2.55	11.70	12.38
Danei PA	6.22	4.74	2.30	15.38	9.92
Danei PA Major	5.41	4.06	1.88	17.39	9.21
Jibei PA	7.68	4.65	2.45	23.11	21.31
Jibei PA Major	7.63	4.63	2.33	21.36	22.84
Zhubei Hoklo	6.74	5.15	2.64	15.36	9.69
Zhubei Hoklo Major	6.61	5.15	2.56	13.59	9.79
Zhubei Hakka	6.96	5.72	2.87	14.37	3.93
Zhubei Hakka Major	6.80	5.55	2.72	15.17	3.79
Lukang Hoklo	7.52	5.20	2.65	20.96	12.58
Lukang Hoklo Major	7.49	5.35	2.73	19.53	11.20

*Excludes zero parity women. ~ children and boys surviving to a fifth birthday.

Table 14 : Women remaining in first marriages and continuously under observation from age at marriage (before age 30) to age 46 by locality, ethnicity and form of marriage: parity distribution, proportions adopting after last birth.

Locality, Ethnicity, Form of Marriage	Pct. Low Parity Women <=3births*	Pct. High Parity Women >=9births	Pct. of All Women Adopting after Last Birth*	Pct. Low Parity Women Adopting after Last Birth*	Pct. Adopting after Last Birth who are Low Parity*	Adoptees per Low Parity Woman
Danei Hoklo	17.57	28.87	7.53	30.95	72.22	0.69
Danei Hoklo Major	18.82	27.72	8.42	34.21	76.47	0.71
Danei PA	16.67	12.50	20.83	100.0	80.0	1.50
Danei PA Major	22.22	5.56	27.78	100.0	80.0	1.50
Jibei PA	6.45	35.48	19.35	50.0	16.67	0.50
Jibei PA Major	7.41	37.04	18.52	50.0	20.0	0.50
Zhubei Hoklo	29.35	31.52	35.87	66.67	54.55	1.70
Zhubei Hoklo Major	30.77	29.23	43.08	75.0	53.57	1.95
Zhubei Hakka	18.81	30.69	29.70	68.42	43.33	1.89
Zhubei Hakka Major	23.94	28.17	33.80	70.59	50.0	1.76
Lukang Hoklo	21.85	39.50	19.33	69.23	78.26	1.58
Lukang Hoklo Major	23.26	40.70	18.60	60.0	75.0	1.40

*Includes zero parity women.