The Impact of Clan Culture on Inter-provincial Differences in the "Zhaodi/di" Ratio

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Abstract

The name 'Zhaodi/di' carries explicit connotations and can reflect, at the group level, the social value orientation of son preference among namers. This study examines the influence of clan culture on inter-provincial differences in the proportion of 'Zhaodi/di'. Using archival data, we constructed provincial-level datasets for clan culture, the proportion of 'Zhaodi/di', and other variables. Chi-square tests confirmed the existence of inter-provincial differences in the proportion of 'Zhaodi/di'. Correlation and regression analyses support that clan culture positively predicts these differences: provinces with stronger clan culture exhibit higher proportions of 'Zhaodi/di'. The research implications are discussed.

Full Text

Provincial Variations in "Zhaodi/Di" Naming Preference and the Influence of Clan Culture

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Abstract

"Zhaodi/di" is a name with clear semantic meaning that reflects, at the group level, a social value orientation of son preference among those who bestow such names. This study investigates how clan culture influences provincial variations

in the prevalence of "Zhaodi/di." Using archival data, we constructed province-level measures of clan culture and the prevalence rate of "Zhaodi/di." Chi-square tests confirmed significant inter-provincial differences in the prevalence of "Zhaodi/di." Correlation and regression analyses supported the hypothesis that clan culture positively predicts these provincial variations: provinces with stronger clan culture exhibit higher proportions of "Zhaodi/di." The implications of these findings are discussed.

Keywords: "Zhaodi/di" prevalence, clan culture, son preference, genealogy, first name

A recent news story about a woman named "Zhaodi" seeking to change her name has sparked widespread public interest, with experts from various fields offering interpretations of this phenomenon (Zhu & Song, 2022). Chinese names typically carry meaning, but most names have relatively personalized semantics that are difficult to discern unless explicitly explained by the individual. However, the meaning of "Zhaodi" is exceptionally clear: it reflects the parents' desire for their next child to be a boy. At the individual level, "Zhaodi" may indicate parental preference for sons, while at the group level, the prevalence of "Zhaodi" likely reflects a social value orientation toward son preference within a given population—the higher the proportion of "Zhaodi," the stronger this orientation.

Clan culture represents one factor influencing son preference (Zhang & Ma, 2017), but no empirical research has yet examined whether it can explain provincial variations in the prevalence of "Zhaodi."

1.1 Psychological Effects of Names

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Names serve as social labels that influence psychological processes and behavior (Su & Ren, 2015). For instance, names can function as racial cues that activate stereotypes and negatively impact employment opportunities for certain racial groups (Bertrand & Mullainathan, 2004). People exhibit greater friendliness toward immigrants or sojourners who adopt local cultural names (Zhao & Biernat, 2019), though this comes at a cost for the immigrants themselves, who may experience lower self-esteem along with reduced well-being and physical health (Zhao & Biernat, 2017). Individuals show heightened sensitivity to information related to their own names, and greater liking for one's name is associated with higher self-esteem (Gebauer et al., 2008) and increased happiness (Lan et al., 2023; Ma et al., 2017). As a group-level indicator, the percentage of most common names can serve as an index of individualism to analyze differences or trends across cultural or subcultural groups (Su et al., 2016; Stojcic et al., 2020;

Twenge et al., 2010; Varnum & Kitayama, 2011).

Chinese names differ from Western naming practices and exhibit culturally specific features with distinct psychological implications. For example, Chinese names can reflect gender orientation, with some individuals possessing names inconsistent with their biological gender (e.g., males with feminine names). Such mismatches can affect mate selection and career choices. Research shows that women with masculine names face reduced opportunities in initial mate selection (Yang & Ren, 2016) but increased chances of securing job interviews (Guo et al., 2020).

"Zhaodi/di" represents a culturally specific Chinese name with unambiguous meaning: parents express their wish for their next child to be a boy when naming their daughter. In terms of gender preference in fertility intentions, "Zhaodi/di" serves as a particularly strong behavioral indicator of parental son preference. Although no empirical research has directly examined this, theoretically, naming a daughter "Zhaodi/di" represents a stronger manifestation than simply answering "yes" to the question "Do you hope your next child will be a boy?" At the group level, a higher proportion of women named "Zhaodi/di" within a population indicates stronger son preference in fertility intentions.

Chinese psychological indicators show inter-provincial variations, including personality traits (Wei et al., 2017) and collectivism (Ren et al., 2021). Son preference in fertility intentions likely exhibits similar provincial differences. Demographic research demonstrates regional variations in China regarding both objective indicators like sex ratios and self-reported fertility preferences (Li & Bi, 2015; Zhang & Ma, 2017). These variations can be explained by group-level variables such as modernization level and cultural traditions. Analysis of the 2010 baseline survey of the China Family Panel Studies (CFPS) reveals geographic differences in birth sex ratios, with county-level ratios averaging 114 and reaching a maximum of 161 (Zhang & Ma, 2017). We therefore hypothesize that inter-provincial differences exist in the prevalence of "Zhaodi/di."

1.2 Clan Culture

Clan culture may explain provincial variations in "Zhaodi/di" prevalence. With a long history in China, clan culture emphasizes patrilineal family continuity, stipulating that only sons can carry on the family surname and preside over ancestral rituals (Hsu, 1963). Although many social norms maintaining clan culture were weakened after the founding of the People's Republic of China—such as communal property and ancestral halls—numerous related norms persist, including post-marital patrilocal residence and regular ancestor worship. Some practices, like genealogy compilation, have even strengthened with economic development. The concept of continuing the family line remains widespread in modern surveys: in the 2010 CFPS, 68.7% of respondents rated "How important is continuing the family line to you?" as "important" or "very important" (Zhang & Ma, 2017).

Clan culture also exhibits geographic variation. The most common indicator of clan culture is the prevalence of genealogies (Zhang & Ma, 2017; Greif & Tabellini, 2017). According to statistics from the Shanghai Library's genealogy database, substantial regional differences exist, with Hunan, Jiangxi, Zhejiang, Fujian, and Guangdong showing higher numbers of genealogies per million population. Theoretically, clan culture should explain regional variations in "Zhaodi/di" prevalence, with stronger clan culture associated with higher proportions of "Zhaodi/di." While direct evidence is lacking, related research provides indirect support. For instance, Zhang et al. (2017) used 2010 CFPS data to demonstrate that at the county level, the proportion of clan ancestral halls positively predicts sex ratios—regions with stronger clan culture exhibit higher sex ratios. However, as an objective outcome, sex ratios are influenced by additional factors and do not perfectly align with "Zhaodi" as a psychological indicator of parental expectations.

1.3 Purpose and Hypotheses of This Study

This study explores provincial variations in "Zhaodi/di" prevalence and the influence of clan culture. We hypothesize that: (1) inter-provincial differences exist in "Zhaodi/di" prevalence, and (2) provinces with stronger clan culture exhibit higher proportions of "Zhaodi/di." We will test these hypotheses using archival data on "Zhaodi/di" and clan culture obtained from the China Government Affairs Information Network and the Shanghai Library's genealogy database.

2 Method

This study employs archival data analysis. Below we describe the variables and their sources.

"Zhaodi" prevalence: Using the national government platform (www.gjzwfw.gov.cn), we queried name duplication for combinations of China's ten most common surnames (Wang, Li, Zhang, Liu, Chen, Yang, Huang, Zhao, Wu, Zhou) with "Zhaodi/di" to obtain national and provincial frequency counts for each name. These were summed to derive total national and provincial frequencies of "Zhaodi/di." We then calculated the prevalence per million using female population data from the National Bureau of Statistics (www.stats.gov.cn) 2020 census, presented in Table 1 .

Clan culture: We used two indicators. First, **genealogy ratio:** Following Grief et al. (2017), we obtained provincial genealogy counts from the Shanghai Library's Chinese Genealogy Knowledge Platform (www.library.sh.cn) database and calculated the ratio per million using 2020 census population data from the National Bureau of Statistics (www.stats.gov.cn), presented in Table 1. Second, **ancestral hall ratio:** We calculated this using the 2010 baseline survey of the China Family Panel Studies (CFPS), a large-scale, nationally representative micro-level household survey funded by Peking University and the National Natural Science Foundation and conducted by Peking University's Insti-

tute of Social Science Survey[1]. The baseline survey covered 635 villages across 25 provinces. Question A3, "Which of the following facilities are within your village/community boundaries?" included "family ancestral hall" as the seventh item, which we used to calculate provincial ancestral hall ratios, presented in Table 1.

Modernity: Following Liu et al. (2019), we included per capita GDP, urbanization rate, and proportion of college-educated individuals as modernity indicators. GDP and population data for per capita GDP calculations, urban and town population counts for urbanization rates, and college-educated population numbers all came from the 2020 census data on the National Bureau of Statistics website (www.stats.gov.cn), presented in Table 1.

Control variables: We controlled for several ecological variables known to affect regional differences in Chinese psychological and behavioral patterns, including paddy rice cultivation area, climatic demands, cultural tightness, latitude, and infectious disease prevalence. Climatic demands data came from Van de Vliert (2003), paddy rice cultivation area and infectious disease prevalence from Talhelm (2020), cultural tightness from Chua (2019), and latitude values for provincial capitals from Baidu Maps (https://map.baidu.com), all presented in Table 1.

3 Results

Table 1 presents values for "Zhaodi" prevalence, clan culture strength, and other variables by province. Nationally, querying the ten most common surnames combined with "Zhaodi/di" yielded 32,659 women with these names. Since these ten surnames account for 41.5% of China's total population, this figure provides good representativeness. Based on 2020 census data showing a national female population of 688,362,330, the national "Zhaodi/di" prevalence is 47.4 per million. Not all provinces offer name duplication queries; we ultimately obtained "Zhaodi/di" prevalence data for 18 provinces (see Table 1). The lowest prevalence was in Chongqing (2 per million), while the highest was in Jiangxi (537 per million)—a 268.5-fold difference, indicating substantial inter-provincial variation. Chi-square test results show significant differences: $^{2}(473{,}236{,}764, 17) = 99{,}874$, $p < 0.001$.

Table 2 reports correlations between transformed (log) and raw "Zhaodi/di" values and other variables. Our two clan culture indicators—genealogy ratio and ancestral hall ratio—showed a significant correlation, $r(16) = 0.52$, $p = 0.041$, indicating consistent provincial patterns and reflecting clan culture strength. Provinces with higher genealogy ratios also showed higher ancestral hall ratios, indicating stronger clan culture.

Correlation analyses revealed that "Zhaodi/di" correlated with genealogy ratio at r_{transformed}(18) = 0.51, p = 0.03 and r_{raw}(18) = 0.70, p = 0.001; with ancestral hall ratio at r_{transformed}(16) = 0.74, p = 0.001 and r_{raw}(16) = 0.70, p = 0.001; and with paddy rice cultivation at

r_{transformed}(18) = 0.46, p = 0.057 and r_{raw}(18) = 0.56, p = 0.015. Correlations with other variables were non-significant. Since raw "Zhaodi/di" values showed stronger relationships, we used raw values in subsequent regression analyses. Latitude correlated with climatic demands at r(18) = 0.93, p < 0.001; latitude with paddy rice cultivation at r(18) = -0.74, p < 0.001; and climatic demands with paddy rice cultivation at r(18) = -0.64, p < 0.001.

Given the small sample size at the provincial level, simultaneously including all control variables would yield unstable results. Following Talhelm (2014) and Ren (2023), we regressed "Zhaodi/di" prevalence separately on clan culture, modernization theory, climatic demands, and paddy rice cultivation. Using genealogy ratio as the clan culture indicator, we found it positively predicted "Zhaodi/di" prevalence, $\beta(18) = 0.51$, p = 0.046, while paddy rice cultivation marginally predicted it, $\beta(18) = 0.46$, p = 0.077. When both were entered simultaneously, only genealogy ratio remained a significant positive predictor, $\beta(18) = 0.60$, p = 0.037, while paddy rice cultivation did not. Genealogy ratio alone also positively predicted "Zhaodi/di" prevalence when compared separately with other variables (modernity, climatic demands, latitude), with $\beta(18)$ ranging from 0.67 to 0.72. Using ancestral hall ratio as the clan culture indicator yielded similar results: ancestral hall ratio positively predicted "Zhaodi/di" prevalence, $\beta(16) = 0.70$, p = 0.002, while paddy rice cultivation showed marginal significance, $\beta(16) = 0.46$, p = 0.077. When entered together, only ancestral hall ratio remained significant, $\beta(16) = 0.58$, p = 0.04. Ancestral hall ratio alone also positively predicted "Zhaodi/di" prevalence when compared with modernity, climatic demands, and latitude, with $\beta(16)$ ranging from 0.73 to 0.81.

Using archival data, we explored provincial variations in "Zhaodi/di" prevalence and whether clan culture could explain these differences. Results supported our hypotheses: substantial inter-provincial variation exists, with the highest province exceeding the lowest by 268.5 times. Jiangxi, Fujian, and Guangdong showed high prevalence, while Sichuan and Chongqing showed low prevalence. Clan culture strength explained these provincial differences, with provinces exhibiting stronger clan culture showing higher proportions of women named "Zhaodi/di."

Clan culture constitutes an important component of Chinese culture, emphasizing patrilineal family characteristics and enforcing these values through social norms and institutional arrangements: children take their father's surname, women reside with their husband's family after marriage, genealogies are compiled, and family ancestral halls exist—yet only males can participate in ritual activities and be recorded in genealogies. Although many norms were abolished after 1949 (e.g., communal clan property), numerous practices persist and continue influencing psychology and behavior, including son preference. Because only males can continue the family line and participate in certain activities recorded in genealogies, provinces with stronger clan culture exhibit more pronounced son preference compared to those with weaker clan culture. Our find-

ings align with previous research using sex ratios (Gu & Li, 1995) but more closely reflect parental attitudes toward son preference, as sex ratios—as objective outcomes—are influenced by additional variables and are less direct than naming behavior.

This study expands research on Chinese names. Using "Zhaodi/di" as a special case with clear meaning, we demonstrate its utility as a provincial-level indicator of social value orientation toward son preference, addressing scholars' calls to leverage the semantic richness of Chinese names to expand psychological research on naming effects (Su & Ren, 2015). Compared to sex ratios, "Zhaodi/di" better reflects parental attitudes, as sex ratios are subject to multiple confounding factors.

Our research also broadens the scope of Chinese cultural psychology. Previous studies have often focused on provincial variations in collectivism and cultural tightness, using established Western cultural psychology metrics to explore or test theories within the Chinese context. Drawing on anthropological and economic research (Zhang & Ma, 2017; Greif & Tabellini, 2017; Hsu, 1963), we examined clan culture as a uniquely Chinese cultural-psychological construct, using genealogy compilation to create a quantifiable indicator of clan culture strength, and found it explains provincial variations in "Zhaodi/di." While previous clan culture research has primarily appeared in sociology and economics—demonstrating, for example, that clan strength moderates the relationship between disasters and peasant rebellions (Kung & Ma, 2014), that modern banks were less common in areas with strong clan culture during the late Qing Dynasty (Chen et al., 2021), that clan culture may have influenced economic development divergences between Europe and Asia (Greif & Tabellini, 2010), and that women face greater employment difficulties in clan culture-strong regions (Li & Huang, 2022)—few studies have used clan culture to explain social-psychological outcomes. Our attempt to explain variations in "Zhaodi/di" naming represents an initial step, and future research could explore clan culture's influence on other psychological variables, such as personality.

Our findings also reveal moderate-to-strong correlations between clan culture and ecological factors like paddy rice cultivation, latitude, and climatic demands. This suggests clan culture may play a role in explaining regional differences in Chinese cultural psychology. For instance, areas with high paddy rice cultivation also show strong clan culture, yet our results indicate clan culture explains "Zhaodi/di" variations better than rice cultivation. Since previous research on Chinese cultural psychology has not controlled for clan culture, it remains unclear whether these ecological effects would diminish or disappear after accounting for clan culture—an important question for future investigation. Methodologically, our use of archival data from the real world, with clear psychological definitions, enhances ecological validity and responds to calls for real-world data in cultural psychology (Morling, 2016).

Our study has several limitations. First, we approximated the total "Zhaodi/di" count using only the ten most common surnames; obtaining complete data

would yield more robust results. However, these ten surnames already account for over 40% of the population, and no evidence suggests differential usage of "Zhaodi/di" across surnames. Therefore, while incomplete, our approach acceptably captures provincial variation trends. Additionally, similar names expressing similar wishes, such as "Laidi" (come, brother) or "Pandi" (hope for brother), were not included. While capturing all such names would be ideal, the complexity of Chinese name combinations makes this challenging. Second, we only have "Zhaodi/di" data for 18 provinces; complete data for all 31 provinces would be more convincing. Nevertheless, our 18 provinces are geographically diverse, covering all seven major regions of China, which enhances robustness. Third, we did not adequately control for time spans in our provincial analyses. Research indicates that both name usage frequencies and their reflected social value orientations show intergenerational changes over decades. Fourth, we did not simultaneously analyze all influencing factors, reducing robustness—a common limitation in provincial-level analyses of psychological indicators. With only 31 provincial-level units (excluding Hong Kong, Macau, and Taiwan), China has fewer units than Japan's prefectures or U.S. states, making models with many variables unstable (Ren et al., 2021). A common remedy is to focus on the relationship between competing and core variables at the provincial level while ignoring others (Ren & He, 2023; Talhelm, 2014). Future research could conduct analyses at the prefecture level for more robust results. Fifth, this study used only archival data; future research should combine experimental designs, large-scale surveys, and other methods to further examine the relationship between clan culture and "Zhaodi/di."

In conclusion, using archival data on "Zhaodi/di" and genealogies, this study examined provincial variations in "Zhaodi/di" prevalence and the influence of clan culture. We found significant inter-provincial differences, with Fujian, Jiangxi, and Guangdong showing high prevalence and Sichuan and Chongqing showing low prevalence. Clan culture explains these provincial variations, with provinces exhibiting stronger clan culture showing higher proportions of "Zhaodi/di."

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[1] More information about CFPS can be found on its official website: http://www.isss.pku.edu.cn/

Note: Figure translations are in progress. See original paper for figures.