

# A Study of Factors Influencing the Demand for Infant and Toddler Childcare Services in Wuhan Based on Regression Analysis

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**Abstract.** Faced with the surge in demand for childcare services brought about by social and economic development, it is urgent to improve the infant and toddler childcare service system. However, there are large differences between domestic and foreign related studies, and domestic studies mostly stay at the macro level or qualitative description of the problem, lacking in-depth analysis of specific demand factors. This study uses literature analysis, questionnaire survey, interview, textual analysis and quantitative analysis to explore the current situation, influencing factors and development countermeasures of the demand for infant and toddler care services in Wuhan from a micro perspective, aiming to enrich the theoretical results of the demand for infant and toddler care services in China.

**Keywords:** 0-3 infants and toddlers, Childcare services, Demand for childcare services.

## 1. Introduction

The 2022 China Fertility Report shows the first negative population growth in China. Rising childcare pressure and changing attitudes of the younger generation limit fertility intentions. Family childcare resources are insufficient and demand for childcare is growing. 2019, the Guidance on Promoting the Development of Infant and Toddler Care Services for Children Under 3 Years of Age proposes to prioritize support for inclusive infant and toddler care service institutions. 2021, in September, the Wuhan Municipal Health and Wellness Commission responded to the recommendations of the Municipal People's Congress meeting by saying that the establishment of government-led childcare institutions should be increased and subsidies for related programs should be given. While research on childcare services is abundant abroad, it is insufficient domestically. The main problems are: lack of demand-side analysis and countermeasures; and lack of empirical studies. This paper aims to fill this gap.

## 2. Research Design

### 2.1 Data sources

This study conducted a survey on the demand for childcare services for infants and toddlers aged 0-3 years in Wuhan through a combination of online questionnaire distribution and offline site selection. The online questionnaire data covered Jiangnan District, Jiangnan District, Hongshan District, Jiangxia District, and East-West Lake District, and the offline questionnaires were mainly from Hongshan District, Jiangnan District, and Jiangnan District. The survey targets families with infants and toddlers aged 0-3 years old, and also covers families without infants and toddlers aged 0-3 years old and families with children aged 4 years old and above. A total of 400 questionnaires were distributed, 332 were collected, 305 were valid, and the effective rate was 91.9%.

### 2.2 Basic situation of the survey

The basic situation of the survey mainly includes three parts: basic situation of parents, basic situation of families, and basic situation of parenting, and the analysis is based on three types of basic situations.

The basic situation of parents is analyzed mainly from the aspect of identity.

**Table 1.** Basic information on parental identity

Parental Identity	Frequency (number)	Percentage (%)
Father	103	33.8
Mother	172	56.4
Grandparent	30	9.8
Total	305	100

As shown in Table 1, the respondents of this study include fathers, mothers, grandparents and grandparents of infants and toddlers aged 0-3 years old, except for the missing values, there are 305 respondents in total.

The basic information of family is mainly analyzed statistically from the family job situation.

**Table 2.** Basic information of family job

Family work situation	Frequency (number)	Percentage (%)
Neither part has	4	1.3
One woman part has	10	3.3
One man part has	35	11.5
Both men and women have	256	83.9
Total	305	100

As shown in Table 2, there is a large difference in the proportion of each type of situation in the basic family work situation, in which 83.9% of both men and women have jobs, while 14.8% of both men and women have jobs for only one person, and 1.3% of both parents have no jobs.

The basic information of parenting mainly includes the age of infants and toddlers.

**Table 3.** Infant and toddler months of age

Month Age	Frequency (number)	Percentage (%)
0-12 months	106	34.8
13-24 months	102	33.4
25-36 months	97	31.8
Total	305	100

As shown in Table 3, the surveyed households with infants and toddlers aged 0-12 months accounted for the highest overall percentage, 34.8%; followed by infants and toddlers aged 13-24 months, 33.4%; and 25-36 months, 31.8%, with a relatively even distribution of overall infant and toddler ages.

### 2.3 Parents' demand for child care services and their preferences

The study further investigated the reasons for parents to choose child care services or not, and investigated the reasons for parents who needed child care services and parents who did not need child care services, and analyzed them to understand the demand and preference of parents for child care services.

**Table 4** Demand for child care services

Demand	Frequency (number)	Percentage (%)
No need	176	57.7
Need	129	42.3
Total	305	100

As can be seen from Table 4, parents' demand for childcare services is relatively lower than the no-need situation, with a percentage difference of about 15.4% in the overall sample, indicating that the current development and conditions of childcare services still do not meet the needs of some parents, and it is therefore more important to understand the factors influencing childcare services and parents' needs.

### 3. Analysis of factors influencing demand for childcare services

#### 3.1 Regression analysis method

The explanatory variable in this study is the need for child care services, which is a dichotomous variable. Logistic model is a typical dichotomous variable model among statistical measures and is often used in the analysis of influencing factors, so this study chose binary logistic regression analysis to investigate the factors influencing the demand for child care services:

$$\ln(1/1-p) = \alpha + \beta_1 \chi_1 + \beta_2 \chi_2 + \dots + \beta_n \chi_n \quad (1)$$

The dependent variable P in the equation is the probability of needing child care services given the value of the independent variable X, 1-P is the probability of not needing child care services given the value of the independent variable X, and (P/1-P) is the incidence ratio of needing child care services. When the value of the regression coefficient is a change in the independent variable X, the corresponding logarithmic change in (P/1-P) indicates the degree of influence of the independent variable on the dependent variable, and a small assignment is used as a reference by default when performing logistic regression.

#### 3.2 Results analysis

From the results of the binary logistic regression analysis, the factors that had a significant effect on the demand for child care services were occupation and education in the personal characteristics factor, work status of both spouses and monthly household income in the family. The primary caregiver in the parenting factor did not pass the significance test, indicating that the age of infants and toddlers in the parenting characteristics factor. The primary caregiver in the parenting factor did not pass the significance test, indicating that these two factors are not the main factors influencing the demand for child care services. The results are shown in Table 5.

**Table 5** Binary logistic regression results of factors influencing demand for child care services

	Variable Name	B	Sig	Exp(B)
Parenting Characteristics Factors	Child's month age (0-12 months)		0.002	
	13-24 months	0.959**	0.013	2.608
	25-36 months	1.326***	0.001	3.765
	Primary caregiver (non-parent)		0.152	
	Father	-0.564	0.447	0.569
	Mother	0.788	0.11	2.198
Personal characteristics factors	Parents together	0.588	0.152	1.8
	Education (high school and below)		0.003	
	Specialized	-0.217	0.684	0.805
	Bachelor's degree	1.029**	0.024	2.798
	Master's degree and above	1.228**	0.019	3.415
	Occupation (commercial individual, service industry personnel)		0	
	Professional and technical personnel	-0.054	0.9	0.947
	Party, government and military organs, institutions or employees of state-owned enterprises	0.936**	0.033	2.551
	Urban jobless, unemployed and semi-unemployed	-1.102	0.16	0.332
	Agriculture, forestry, animal husbandry, fishery production and auxiliary personnel	-	0.007	0.264
	Others	-0.905	0.146	0.405
	Family characteristics factors	Monthly income (less than 5,000 yuan)		0.007
5000-7999 Yuan		0.32	0.564	1.378
8,000-10,999 Yuan		0.382	0.469	1.465
11000-14999 Yuan		1.438***	0.009	4.214
15000 and above		1.452***	0.007	4.27
Work situation (neither party has)			0.012	
The female party one has a job		1.115	0.465	3.05
The male party one has a job		2.857**	0.011	17.416
Both men and women have	3.051***	0.004	21.145	
Constants	-5.624	0	0.004	

The regression coefficients of the occupation factor among the personal characteristics factors are negative for all occupations except for employees of party and military organs, institutions or state-owned enterprises, while commercial individuals, party and military organs, institutions or state-owned enterprises employees are significant at the 1% and 5% levels, respectively, indicating that commercial individuals, service industry personnel and employees of party and military organs, institutions or state-owned enterprises are more willing to choose childcare services. In terms of characteristics, urban jobless, unemployed and semi-unemployed people have more economic pressure on the one hand, and have relatively more time on the other hand, so they tend to choose to raise their own babies and children; agricultural, forestry, animal husbandry and fishery production

and auxiliary workers are busier in nature, but the location is mostly fixed near their residence, and their economic income is relatively low, so the overall acceptance of childcare services is lower.

The education factor in the personal characteristics factor has a statistically significant effect on the demand for childcare services, and the regression coefficients of high school and below, specialist, bachelor's degree, master's degree and above all have positive values, but only bachelor's degree and master's degree and above pass the significance test, and the incidence ratios on the demand for childcare services are 2.798 and 3.415, respectively, indicating that the demand for childcare services is higher for bachelor's degree, master's degree and above, and the education There is a significant positive correlation between the effects of education on the demand for childcare services.

Family characteristics, such as the couple's work status, had a statistically significant effect on the demand for child care services. The coefficients of both partners working and one father working are positive, but only the male partner alone has and that both female partners have passed the significance test and are statistically significant, and their incidence ratios on the demand for childcare services are 17.416 and 21.145, respectively. in general, in families where both spouses work, the monthly family income is higher than in families where only one spouse works, and the demand for childcare and education is higher and need professional child care services to participate in the care of their children.

Among the family characteristics factors of monthly family income, those with a monthly family income of \$11,000 and above have a statistically significant effect on the demand for child care services, and the regression coefficients corresponding to families with a monthly family income of \$11,000-14,999 and \$15,000 and above are all positive, indicating that there is an increased impact on the demand for child care services as the monthly family income increases. From a practical point of view, families with high economic incomes are generally accompanied by more work pressure, a lack of time resources and a relative abundance of material resources, so they show a higher demand for infant and toddler childcare services.

All three ages of infant and toddler months among the parenting characteristics factors show statistically significant effects, with 13-24 months of age and 25-36 months of age significant at the 5% and 1% levels, respectively, indicating a significant positive effect of infant and toddler months of age on the demand for child care services. The main reason for this is that families in which the mother or father is the primary caregiver often need child care services due to factors such as work and limited financial resources, and for grandparents or other people as primary caregivers there may be considerations such as physical and mental strain on the elderly and increased financial burden, therefore, the significant impact of all factors may be similar for families with different primary caregivers, and differences in primary caregivers cannot directly affect the demand for child care services. The difference in primary caregivers does not have a direct impact on the demand for child care services.

#### 4. Conclusion

Childcare services are a product of the times and require a transition period and policy support. It is necessary to train highly skilled childcare personnel, ensure the safety and health of infants and toddlers, meet the diversified needs of parents, accelerate the construction of public and inclusive childcare institutions, enrich service delivery, clarify the management and input responsibilities of governments and departments at all levels, and form a multi-party collaborative public service management system. Childcare services are both a social need and a social responsibility, and need to be jointly improved and promoted.

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