

Public Service Standard and Demand for Childcare Support Facilities in Mountainous Areas: Case Study on Yamaguchi Prefecture

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Abstract

This paper aims to clarify facility's demand in each school district based on location and user status by case study of former town/village in Yamaguchi Prefecture. Findings of this study are as follows.

- 1) There are 41 childcare support facilities in former town/village in Yamaguchi Prefecture. These facilities are classified into four types based on the number of pre-nursery school children in each district and the average of day's parent-child number in each facility.
- 2) In group A, there are few pre-nursery school children, therefore there are few users of those facilities. Conversely, in group D, there are many children under 3 years old, and there is no facility in neighbor districts. Thus it's consider that there are many users.

Keywords: Childcare support; Former town/village; Development level; Management form

1. Introduction

Childcare support facilities have been established as part of countermeasures to the falling birthrate in Japan. These facilities are opened by reusing vacant rooms in nursery schools and public facilities. Parents visit there with their 0-3-year-old children, and talk and play with staffs and other parent-child. These facilities are arranged on basis of junior high school district, but the number of 0-3-year-old child is different in each school district.

This paper aims to clarify facility's demand in each school district based on location and user status by case study of former town/village in Yamaguchi Prefecture.

2. Investigation outline

There are 141 facilities in Yamaguchi Prefecture in

April, 2012. Survey object is 42 facilities established in former town/village.

First, we collected facility's data about the number of users and opened days from child care support section of every municipality. The average of day's number of parent-child who visit each facilities was calculated by formula1^{Note1)} based on these data. In addition, the number of pre-nursery school children was calculated by subtracting the number of children going nursery school from the number of 0-3-year-old children in each school district based on Census 2010.

Second, 4 facilities were chosen from 42 facilities, and management form, support contents and place were clarified by hearings with facility manager.

Third, the average of day's number of parent-child was calculated by formula2^{Note2)} based on the number of day's users in October 2012.

According to compare number calculated by formula1 and formula2, it was confirmed the difference was small. The survey period was September 2013 through January 2014.

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3. Location and user status of facilities in former town/village

3.1 Number of pre-nursery school children in each school district and average day's number of parent-child

Figure1 is shown relationship of number of pre-nursery school children in each school district and average day's number of parent-child. Ogori district of Yamaguchi city is heavily populated, and there are 637 pre-nursery school children. The number is one and a half times of other district in former town/village. Therefore, Ogori district is excluded in this analysis.

41 facilities are classified into 4 groups by the distribution trend of each facility. In group A (16 facilities), the average number of pre-nursery school children is 36.1 people, and it's 40% or less of other groups. This number is close to the average number of pre-nursery school children (26.2 people) in 16 school districts which have no facility. Average of day's number of parent-child is 1.0 pairs, and 11 facilities are below average.

In group B (14 facilities) and group C (8 facilities), the average of day's number of parent-child is about 7 pairs. However, in group C, the number of pre-nursery school children is 233.6 people and it's more than two times of group B.

In group D (3 facilities), the number of pre-nursery school children is 195.6 people and the average of day's number of parent-child is 19.7 pairs. Group D has the largest number of pairs who visit each facility.

Four facilities are chosen from each group as subjects for analysis. These numbers of pre-nursery school children and the average of day's numbers of parent-child are close to the average for each group.

3.2 Number of users in 2012

There is a rule that lecture about child-rearing be held in child care support centers at least once a month. It's expected that many users visit more than non-lecture day. Table 1 shows the number of users in 2012 of each facility. In case 1, the facility had been opened for 247 days and lecture had not been held. The number of users is 2,074 people for a year, and 4.2 pair visit per day.

In case 2, the facility had been opened for 190 days and lecture had been held 12 times. The number of users is 2,905 people for a year.

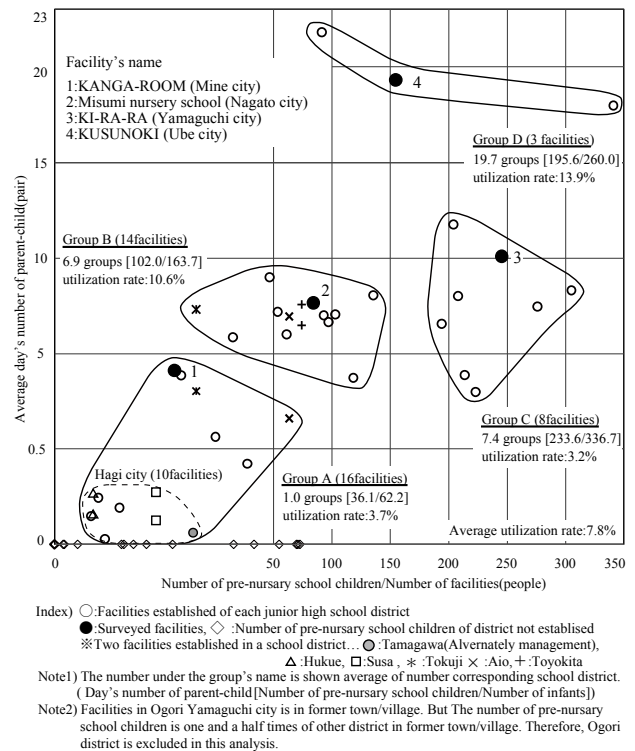


Figure1 Number of pre-nursery school children and average of day's parent-child number

Table 1 Number of users in 2012

Facility's number	Number of users in 2012 ^{Note1)}			Number of opening days ^{Note2)}	Number of user's group of average per day ^{Note3)}	
	2000	4000	10000 (people)		2012	Oct-12
1	2074(100%)			247(0)	4.2	2.2
2	2700(92.9%)	205		190(12)	7.6	8.8
3	2245(82.5%)	475		135(18)	10.1	9.8
4	9059(93.2%)		664	252(13)	19.3	19.1

Index: [shaded box] : Ordinary day, [white box] : lecture day
 Note1) () is a rate of number of ordinary day's users per number of users in year.
 Note2) () is number of lecture days in whole opened days.
 Note3) "2012" is calculated by formula1. "Oct-12" is calculated by formula2.

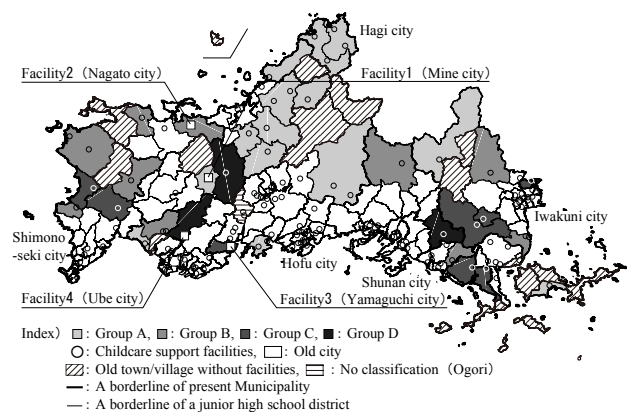


Figure 2 Facility's locations in Yamaguchi Prefecture and distributions of 4 group

In case 3, the facility had been opened for 135 days and lecture has been held 18 times. The number of users is 2,720 people for a year, this is

Table 2 The outline of facilities

Facility's Number/Name	1/ KANGA-ROOM	2/ CHILDCARE SUPPORT CENTER IN MISUMI NURSARY SCHOOL	3/ KI-RA-RA	4/ KUSUNOKI
Main role	Mine city (Mine Akiyoshi Nursery school)	Nagato city (Nagato Misumi Nursery school)	Yamaguchi city (Yamaguchi Aisu Nursery school)	Ube city
Opened years and months	Apr-96	Apr-05	Apr-00	Jul-05
Construction/Floors	Reinforced concrete/One-story	Wooden house/One-story	Reinforced concrete/two-stories	Reinforced concrete/two-stories
Facility form	Nursery school (paralleled with schoolchild care facility)	Nursery school	Nursery school	Public facility
Place (Area)	Part of a playroom (160m ²)	Exclusive room (100.8m ²)	Part of a playroom (82.5m ²)	Exclusive room (152m ²)
Parking	Share with nursery school's (4 cars) and community center's	20 cars (Exclusive space)	Share with nursery school's and office's	35 cars (share with a neighbor public facility)
Management form	Opened day (Time)	Mon, Tue, Fri (9:30-12:00, 13:00-15:30)	Tue, Thu, Fri (9:00-14:00) *Lunch time: 12:00-13:00	Mon to Fri (9:30-15:30) *Lunch time: 12:00-13:00
Staff	Number of people	two people (onerous: two, gratuitous: zero)	two people (onerous: two, gratuitous: zero)	four people (onerous: four, gratuitous: zero)
	System	two people (Full-time: one, Concurrently one ^{Note1)})	two people (Full-time: two)	two people

Note1) The director of nursery school is hold position of the head of center. Note2) They are hold position of other facilities in the city.

the almost same number with case 2. But the total number of lecture date is 475 people, it is more than double of case 2.

In case 4, the facility had been opened for 252 days. The number of users is 9,723 people for a year, and 19.3 pair per day.

The average of day's parent-child number is calculated by formula1^{Note1)} and formula2^{Note2)}. Because there is no significant difference between these numbers, the average day's number of parent-child is calculated by the number of users for a year including lecture.

3.3 Facility's locations in Yamaguchi Prefecture and distributions of 4 groups

Figure 2 shows facility's locations in Yamaguchi Prefecture and distributions of 4 groups. There are many facilities in former municipality area of Ube city, Hohu city, Shunan city, and Iwakuni city. Conversely, there are few facilities in former town/village area of the northern part of prefecture. Facilities are established in neighbor school districts.

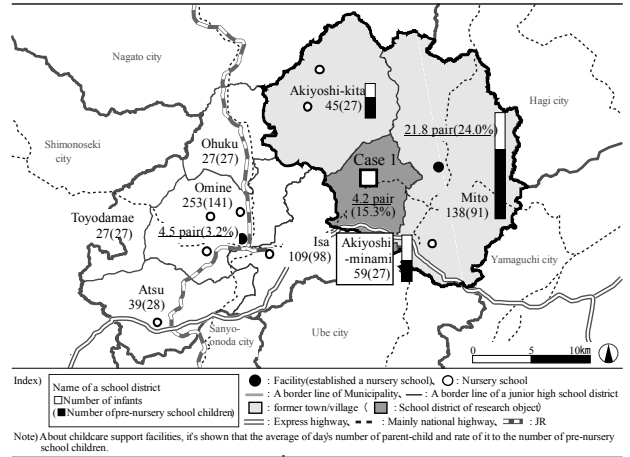
As for distribution of 4 groups, in group A, 10 of 16 facilities are located in Hagi city. It's characteristic that group D is contiguous to the school districts without facility in former municipality.

4. Case study

4.1 The outline of facilities

4 facilities chosen from each group are analyzed to clarify the actual condition of them. These facilities are located in Mine city (Case 1), Nagato city (Case 2), Yamaguchi city (Case 3), and Ube city (Case 4).

Table2 shows the outline of each facility. Case 4 is managed by Ube city, and maintained by using public facility. Also, the management of other cases is nursery school, and used nursery school's room. About management form, opening day is three days(case 2, 3) or five days (case 1, 4) a week. Opening time is about six hours from 9:30, and



Note) About childcare support facilities, if's shown that the average of days number of parent-child and rate of it to the number of pre-nursery school children.

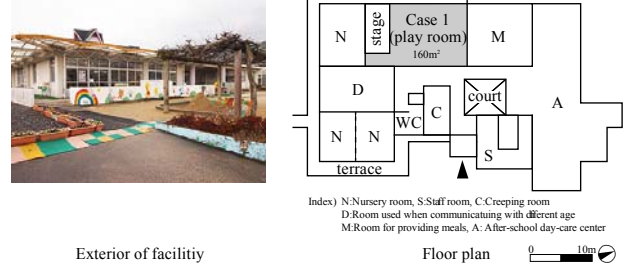
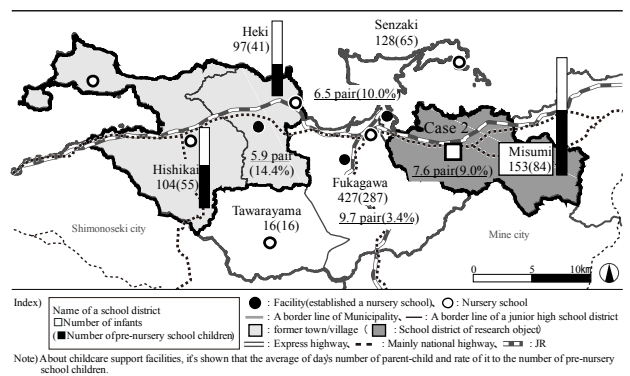


Figure 3 Case 1 (KANGA-ROOM)



Note) About childcare support facilities, if's shown that the average of days number of parent-child and rate of it to the number of pre-nursery school children.

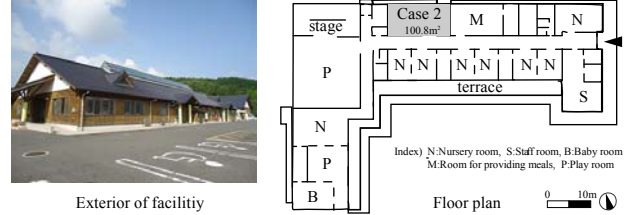


Figure 4 Case 2 (Misumi nursery school)

lunch time is one hour from 12:00 in case3, 4. Also, two staffs are working.

4.2 Case 1 (KANGA-ROOM)

Case 1 is located in Akiyoshiminami district of Mine city. In addition, two facilities are established in Omine district and Mito district of this city. In Akiyoshiminami district, there are 27 pre-nursery school children, and the average day's number of parent-child is 4.2 pair. A part of playroom of Akiyoshi nursery school is used for childcare support activity. But, when the playroom is used at the event of nursery school, facility is closed because there is no other room available. There are few number of pre-nursery school children in Akiyoshiminami district, and place of childcare support activity isn't always available because it's shared with the nursery school. Therefore, it's consider that user is small.

As for other school district, in Omine district, the number of pre-nursery school children is 141 people, and the average of day's parent-child number is 4.5 pair. In Mito district, the number of pre-nursery school children is less than Omine district, the average of day's parent-child number is five times of it.

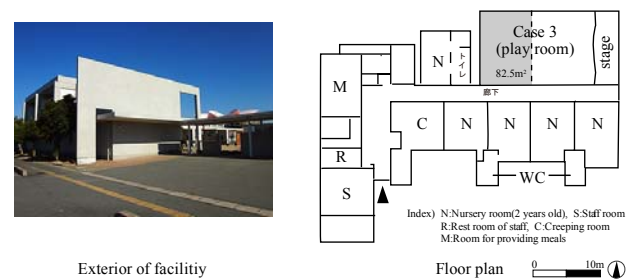
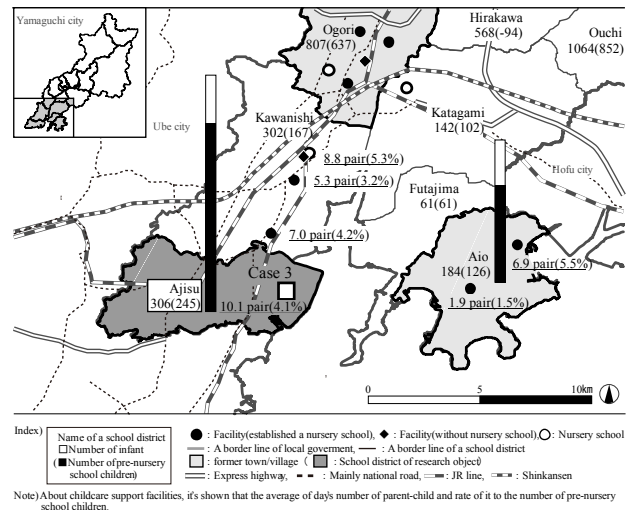


Figure 5 Case 3 (KI-RA-RA)

4.3 Case 2 (CHILDCARE SUPPORT CENTER IN MISUMI NURSERY SCHOOL)

Case 2 is located in Misumi district of Nagato city. In addition, three facilities are established in Hukagawa district, Senzaki district, and Hioki district of this city. In Misumi district, the number of pre-nursery school children is 84 people, and the average of day's parent-child number is 7.6 pair. Nagato city was merged in March, 2005 (Misumi town, Hioki town, Yuya town), and three nursery school was merged. At that time, Misumi nursery school was reconstructed, and an exclusive room for childcare support was added to there. Total floor area is 100.8 square meter. Floor area per a pair is 13.2 square meter by dividing the average of day's parent-child number (7.6 pair). It's considered that utilization ratio is high, because an exclusive room is equipped.

As for other school district, in Fukagawa district, the number of pre-nursery school children is 287 people, and the average of day's parent-child number is 9.7 pair. Also, in Senzaki district and Heki district, the number of pre-nursery school children is about 50 people. However, the average of day's parent-child number correspond more than

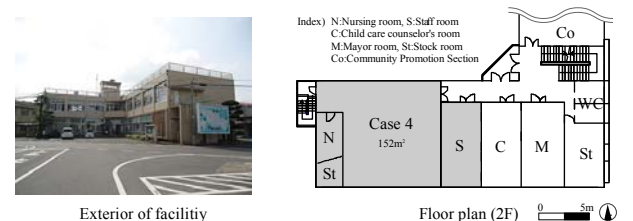
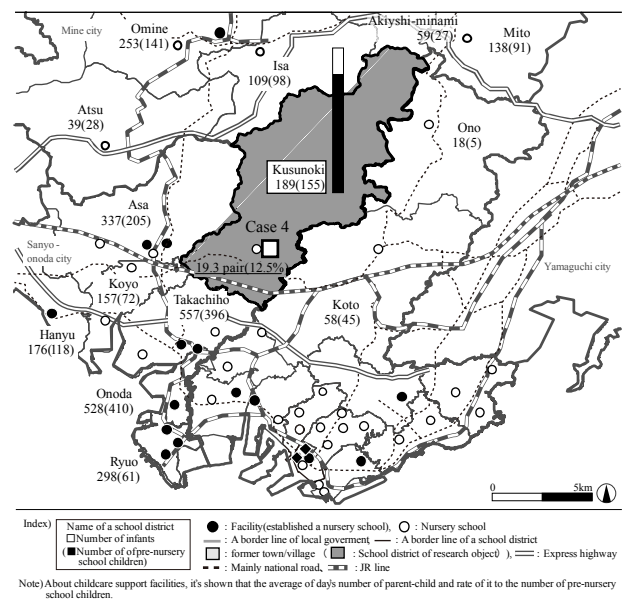


Figure 6 Case 4 (KUSUNOKI)

10 % of them, therefore utilization rate is high.

4.4 Case 3 (KI-RA-RA)

In Yamaguchi city, the analysis focus on near school district of case 3, because many facilities are located in former city. A part of playroom in Ajisu nursery school is used for child care support activity, similarly to case 3. Crib and diaper changing table are put away when facility is closed, because play room is used as the extended day care for children. There are many pre-nursery school children in Ajisu district, but it's consider that many people are not available, because support space is temporary and narrow.

About other school district, in Kawanishi district, three facilities are established. The number of pre-nursery school children is 167 people, and total utilization is 12.7 %. In Aio district, two facilities are established and total utilization is 7.0 %.

4.5 Case 4 (KUSUNOKI)

In Ube city, there are six childcare support centers by utilizing the nursery school. In case 4 located in Kusunoki district, the number of pre-nursery school children is 155 people, and the average of day's parent-child number is 19.3 pair. The second floor of Kusunoki government building is used for childcare support activity. Management form is classified into two sections by the age of users in Monday, Tuesday, Thursday, and Friday. Two rooms are prepared for two hours from 10:00, and children can play game suitable for each age. It's considered that the utilization is high by these programs.

In Asa district and Takachiho district of Sanyo-onoda city neighboring Kusunoki district, two facilities are established. But there is no facility in Ono district and Atsu district of Ube city. It's consider that the number of pre-nursery school children is less than 50 people.

5. Conclusions

Findings of this study are as follows.

- 1) There are 41 childcare support facilities in former town/village in Yamaguchi Prefecture. These facilities are classified into four types based on the number of pre-nursery school children in each district and the average of day's parent-child number in each facility.
- 2) About distribution pattern of 4 group, in group A, 10 of 16 facilities are located in Hagi city.

Group B is located in districts away from the central city area. Group C are mainly located in Shimonoseki city and Iwakuni city. Group D is neighbored districts without facility in former municipality.

- 3) From case studies of 4 facilities, in case 1, the number of pre-nursery school children is 27 people, and the average of day's parent-child number is 4.2 pair. In case 2, the number of pre-nursery school child is 84 people, and the average of day's parent-child number is 7.6 pair. It's consider that these utilization rate is high, because an exclusive room is equipped.

The district located case 3 has the most number of pre-nursery school children in 4 facilities. But, the average of day's parent-child number is only 10.1 pair of 4.1 % of them, because a part of playroom is used for childcare support activity.

In case 4, the number of pre-nursery school children is less than case 3. But, the average of day's parent-child number is 19.3 pair of 12.5% of them, because there is program suitable for each age at an exclusive room.

Note

- 1) Average of day's parent-child number
= (Number of user for a year /Number of opened day)/2
- 2) Average of day's parent-child number
= {(Number of user in October, 2012- Number of user of lecture day) / (Number of opened day in October, 2012- Number of lecture day)/2

References

- 1) Otani,Y., NakayamaT. and Seto,A.(2005) Establishment and Administrative System of Regional Childcare-Center in Local Governments throughout the Country. Journal of Japan Society of Home Economics, 56(9),661-672
- 2) Yoshioka, A., Yamamoto, S., Ito, Y. and Nakazono, M. (2012) The trend of the location of the childcare support facility by junior high school area and local government. Proceedings of Annual Research Meeting Chugoku Chapter, Architectural Institute of Japan, (35), 561-564