

## IRSET-0036

# Change of the Number of Young Children and Nursery Schools in Yamaguchi Prefecture (1960-2015)

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### Abstract

Establishment of nursery schools has been advanced since 1948. But, total fertility rate declined rapidly after 1989, so various measures toward falling the birth rate were introduced, such as ‘Angel Plan’ that is the basic plan on childcare support. In recent years, the children waiting to enter a nursery school increases, and establishment of a nursery school is demanded in urban areas. On the other hand, merger and abolition of the nursery schools are increasing, because the birth rate is falling in depopulated areas. Therefore, there is the difference about the facility development between urban and depopulated areas.

The aim of this study is to clarify the location trend of the nursery schools, by based on the change of the number of the nursery schools, established nursery schools and abolished nursery schools in Yamaguchi prefecture from 1960 to 2015.

Keywords: Nursery school, Young children, Location trend, Utilization rate

## 1. Introduction

A Nursery school was stipulated as the child welfare by introduction of the child welfare law in 1947. Establishment of a nursery school has been advanced since 1948. But, total fertility rate declined rapidly after 1989, so various measures toward falling the birth rate were introduced, such as 'Angel plan', that is the basic plan on childcare support. The strategy to make the children 0 people waiting to enter a nursery school was introduced by the government in 2001 and policy was proceeded. However, the children waiting to enter a nursery school increases in recent years, and in 2016, the number of the children waiting to enter a nursery school reached 2,630,000 people. On the other hand, nursery schools are consolidated and the abolished nursery schools are increasing, because the birth rate is falling in depopulated areas. Because of decreasing a nursery school, the area has in a vicious circle that deterioration of the child care environment affects proceeding outflow of the households with young children. Therefore, there is the difference about the facility development between urban and depopulated areas.

In previous studies on a nursery school, there are the accumulations of the study such as analysis on space structure of a nursery school 1), analysis on environmental in a composite nursery school which increases recently 2), verification on efficacy of a branched nursery school to solve the problem on child waiting to enter the facility 3) and the details and the process of rebuilding for shifting from a public nursery school to a private nursery school 4-5). But, there are few studies of abolishment of a nursery school or activation methods of an abolished nursery school.

As mentioned above, the aim of this study is to clarify the location trends of a nursery school, by based on the change of the number of nursery schools, established nursery schools and abolished nursery schools in Yamaguchi prefecture from 1960 to 2015.

## 2. Methods

Firstly, this paper has clarified the number of young children, households with young children and dual-income households with young children in Yamaguchi prefecture. The data used for analysis is compiled from a national census (1960-2015).

Secondly, the change of the number of the nursery schools in Yamaguchi prefecture has been clarified. The data used for analysis are compiled from the number of the nursery schools, facility capacity and nursery school children. Furthermore, this paper has clarified the change of the number of the nursery schools according to old cities and old towns and villages with the municipality division before merger in the Heisei era, because there was a difference about increase and decrease of the number of the nursery schools between urban areas and depopulated areas. The data used for analysis is compiled from a Yamaguchi prefecture statistical yearbook (1956-2014).

Thirdly, we have analyzed the situations of the established and abolished nursery schools and location trends of the nursery schools in Yamaguchi prefecture. The data used for analysis are compiled from a List of Social Welfare Facilities, etc. by Public Welfare Department, Society Division in Yamaguchi prefecture (1974, 1976, 1981-1988, 1992-1994), a List of Health and Welfare Facilities, etc. by Health and Welfare Department, Welfare Division in Yamaguchi prefecture (1996-2014) and a List of Social Welfare Facility, etc. by Welfare Human Resource Center in Yamaguchi prefecture (2015).

### 3. Results

#### 3.1 The Change of the Number of Population and Households in Yamaguchi Prefecture

Figure 1 and 2 show the change of the number of population by an age group in Yamaguchi prefecture. The population decreased from 1,602,000 people in 1960 to 1,511,000 people in 1970, but it increased to 1,602,000 people in 1985 because of the second baby boom in early 1970s. After that, the population decreased to 1,396,000 people in 2015. In other words, it has decreased 205,000 people for 30 years, and depopulation progressed. As for the population by an age group, the population of 5 years old and under increased 14,000 people from 1970 to 1975. After that, the population of 5 years old and under consistently decreased before 2015. In 2015, it decreased to 63,000 people, in other words, it decreased 60% from 1975 to 2015. The population from 15 to 64 years old has rapidly decreased since 1985. The population from 6 to 14 years old slightly increased in 1970s. However, the population from 6 to 14 years old decreased in other years. The population of 65 years old and over has increased since 1960. In 2015, it reached 448,000 people and increased over four times from 1960. Low birth rate with population and aging society is progressed in Yamaguchi prefecture, because the child population has decreased and the elderly population has increased.

Figure 3 shows the change of the number of households with young children and dual-income and single-parent households with young children, because these households are maybe main households to use a nursery school. The young children have decreased since 1980. And, the dual-income and single-parent households with young children had decreased before 1995, but they have slightly increased since 1995. The dual-income households increased after 2000 because of the revision of the Equal employment opportunity law that is the support policy of working women in 1997 and the change of working style. As for single-parent households, mainly single-female-parent households tended to increase after 2000.

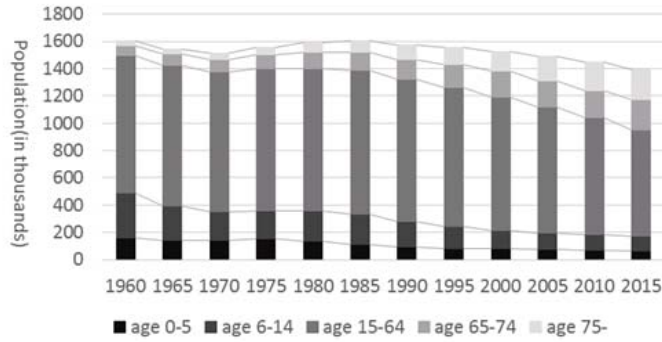


Fig. 1: The change of the number of population and households in Yamaguchi prefecture

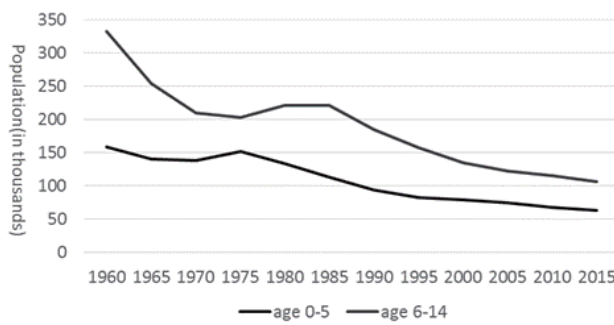


Fig. 2: The change of the number of population and households in Yamaguchi prefecture (under age 14)

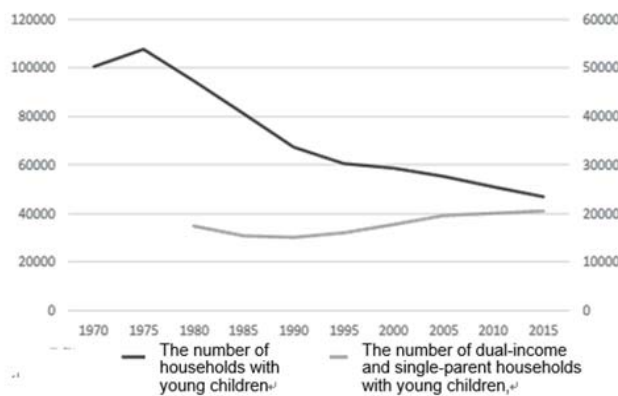


Fig. 3: the change of the number of households with young children and dual-income and single-parent households with young children

### 3.2 The Change of the Number of Nursery Schools and Nursery School Children in Yamaguchi Prefecture

Figure 4 shows the change of the number of nursery schools, facility capacity and nursery school children and the fulfilment rate of facility capacity in Yamaguchi Prefecture. The fulfilment rate

of facility capacity is the number of nursery school children to facility capacity of a nursery school and shows the status of utilization of a nursery school. There were 268 nursery schools, 19,000 people capacity and 17,000 nursery school children in 1960 when the child care system started to spread. The nursery schools and the facility capacity increased before 1980. The nursery school children increased rapidly after 1970 because of the second baby boom and spread of a nursery school. And, the number of the nursery school children increased from 19,000 people in 1970 to 29,000 people in 1980 and increased about 10,000 people for 10 years. After that, the number of the nursery schools decreased from 382 facilities in 1980 to 369 facilities in 1995, the number of the facility capacity decreased from 32,000 people to 27,000 people and the number of the nursery school children decreased from 29,000 people to 22,000 people, because young children decreased. However, the nursery schools decreased after 1995, on the other hand the nursery school children increased again. This is because dual-income and single-parent households increased. The number of the facility capacity doesn't change after 2005 and the number of the nursery school children is often more than the facility capacity and the fulfilment rate of facility capacity has kept about 1.0 since 2000.

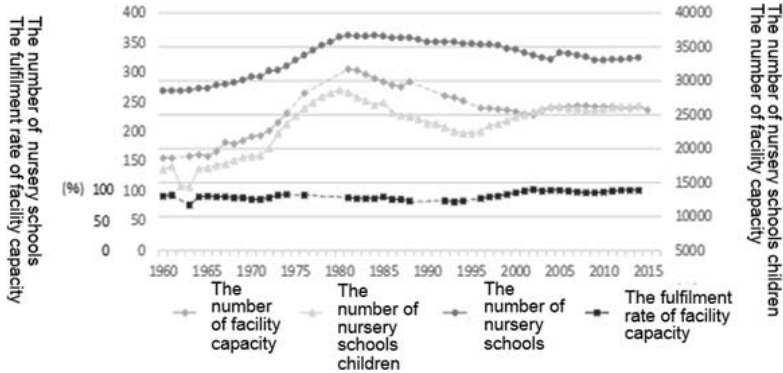


Fig. 4: The change of the number of nursery schools, nursery school children and facility capacity and the fulfilment rate of facility capacity in Yamaguchi Prefecture

### 3.3 The Change of Nursery Schools and Facility Capacity in Old Cities and Old Towns and Villages

Figure 5 shows the change of nursery schools and facility capacity in old cities and old towns and villages by a management organization and shows the trends of the nursery schools. In old cities, the facilities decreased after 1990, but the facility capacity increased after 1995. So, the facility capacity of each facility maybe increased. The private nursery schools were more than the public nursery schools and they occupied 60-70%. The public nursery schools decreased after 1990. The number of the public nursery schools decreased 21 facilities and the number of the nursery school children decreased about 2,000 people before 2015, this is because it was affected by decrease of young children. On the other hand, the private nursery schools increased before 1985 and decreased slightly after 1985. The facility capacity of the private nursery schools

decreased after 1980, but they increased again after 2005 and increased about 2,600 people for 10 years. So, it is likely that the private nursery schools respond to increasing the nursery school children.

In old towns and villages, the facilities and the facility capacity has decreased since 1980. The public nursery schools were more than the private nursery schools and they occupied 60-70%. The public nursery schools decreased after 1980. The number of the public nursery schools decreased from 108 facilities in 1980 to 58 facilities in 2015 and the number of the facility capacity decreased from 7,501 people to 3,290 people, and they decreased half in 25 years. The decrease of young children affected that seriously. The private nursery schools and the facility capacity decreased slightly after 1980, but it is characteristic that they increased in 2015.

From the above, establishment of the private nursery schools in old cities and the public nursery schools in old towns and villages progressed especially. And it is likely that the private nursery schools in old cities take over a part of demand in old towns and villages, because the public nursery schools in old towns and villages decreased rapidly after 1995, on the other hand the private nursery schools in old cities increased.

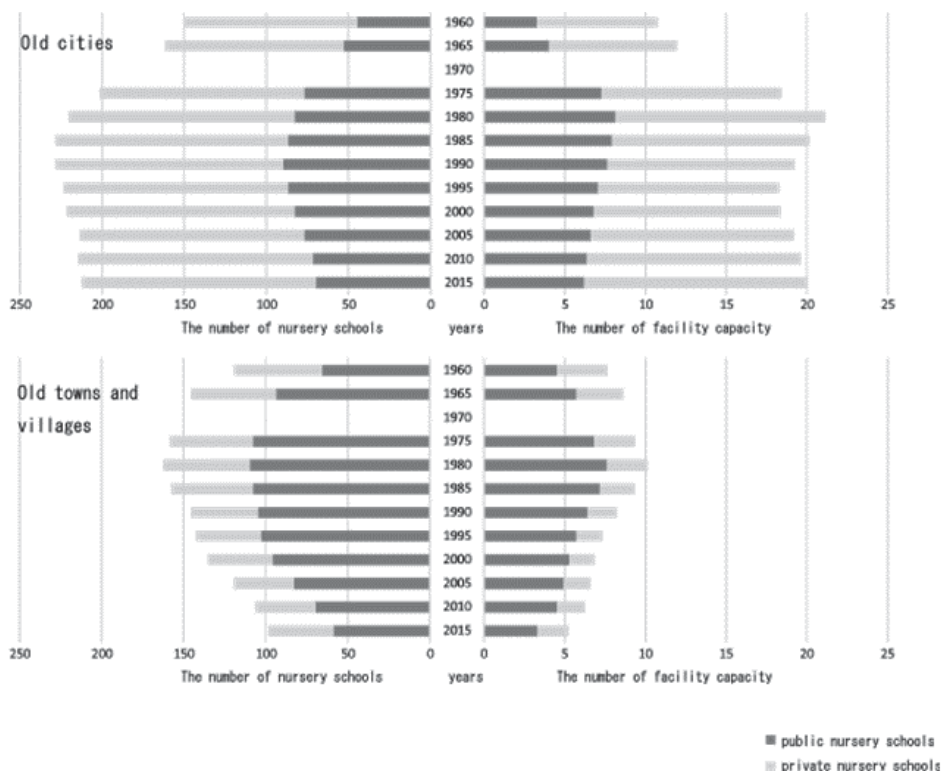


Fig.5: The change of nursery schools and facility capacity in old cities and old towns and villages by a management organization

### 3.4 The Change of the Fulfilment Rate of Facility Capacity

Figure 6 shows distribution maps of the fulfilment rate of facility capacity in 1968, 1980, 2000, and 2015. This paper uses the data of 1968, because there is no data of the number of nursery school children by old municipalities in 1960. And, this paper analyzes except for nursery schools in remote rural areas, because there is no data of the facilities. There was no nursery school in 6 old municipalities in 1968, but the fulfilment rate of facility capacity was more than 0.75 in other old municipalities. The fulfilment rate in 5 municipalities was 1.0 and high level. There was no nursery school in 2 old municipalities in 1980. The fulfilment rate was more than 0.75 in most old municipalities, and the disparity between old municipalities was small. On the other hand, the fulfilment rate in old municipalities whose fulfilment rate was 1.0 in 1968 was less than 0.75 in old town of Shimonoseki city, and the fulfilment rate seriously declined.

The fulfilment rate of facility capacity in many old cities was 1.0 in 2000. On the other hand, it is characteristics that the fulfilment rate in old Shimonoseki city was less than 0.75. The fulfilment rate in many old towns and villages around old cities was 1.0, but the number of old municipalities whose fulfilment rate was less than 0.75 increased in mountainous areas. The nursery schools were established in all old municipalities except for 1 old municipality in 2015, but nursery schools in remote rural areas was established in this old municipality. The fulfilment rate in many old cities was more than 0.75. The fulfilment rate was 1.0 in old towns and villages near Seto inland sea, but there were many old municipalities whose fulfilment rate was less than 0.5 in mountainous areas. So, there was the disparity especially in old towns and villages.

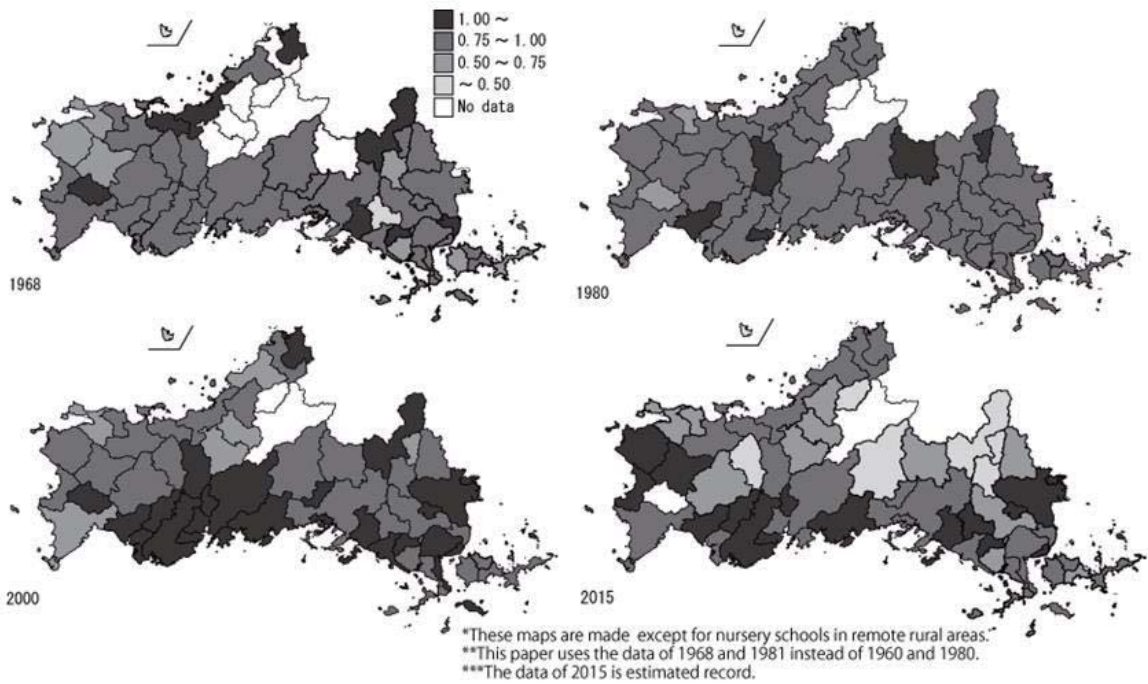


Fig. 6: The distribution maps of the fulfilment rate of facility capacity

3.5 The Establishment and Abolishment of Nursery Schools by Old Municipalities

## (1) 1968-1980

Table 1 shows the change of the number of the nursery schools from 1968 to 1980, and figure 7 shows a distribution map of the facilities. There was no nursery school in 6 old municipalities in 1968, but the number of the old municipalities decreased to 2 in 1980. The number of the facilities increased 1 or 2 in many old municipalities, and the facilities decreased in only 1 old municipality. The nursery schools tended to increase in mainly old cities near Seto inland sea. The number of the facilities increased to 7-10 in many old municipalities that had 5 facilities in 1968. 4 facilities were established in old Kudamatsu city, because the fulfilment rate in 1968 was 1.0. The number of old municipalities with 11-20 facilities was the most in 1980.

The nursery schools established mainly in old towns and villages with 0 or 1 facilities in 1968. The facility establishment was advanced in old municipalities with a few nursery schools regardless of the fulfilment rate of facility capacity, because the nursery schools were established in old municipalities with 2 facilities even if the fulfilment rate was less than 0.5. Although the fulfilment rate was more than 0.75, 1 nursery schools were abolished in 1 municipality. This is because the number of the nursery schools was many with 7 facilities in mountainous areas.

Table 1: The change of the number of the nursery schools from 1968 to 1980

Old cities		The number of nursery schools in 1980				
		5	6	7~10	11~20	21~
The number of nursery schools in 1968	5			2		
	6		2			
	7~10			2	3	
	11~20				2	2
	21~					1

Old towns and villages	The number of nursery schools in 1980							
	0	1	2	3	4	5	6	7~10
The number of nursery schools in 1968	0	2	4					
	1		5	2	4			
	2			7	2			
	3				3	1		
	4							1
	5						2	1
	6							2
	7~10							1

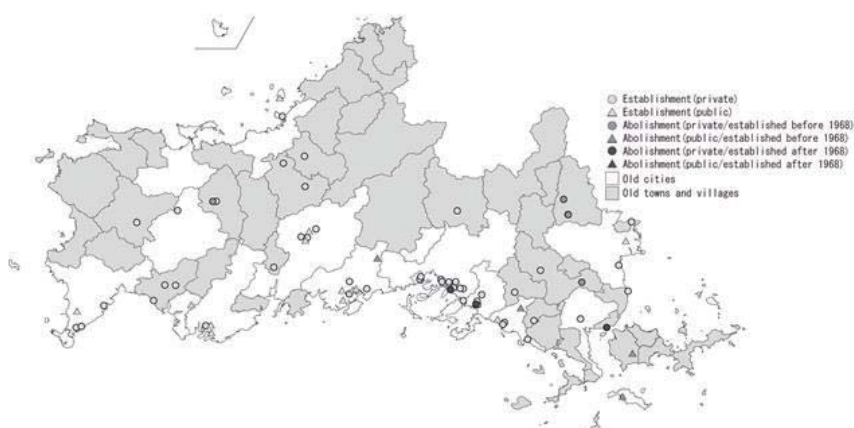


Fig. 7 The distribution map of the facilities from 1968 to 1980

## (2) 1980-2000

Table 2 shows the change of the number of the nursery schools from 1980 to 2000, and figure 8



shows a distribution map of the facilities. There were few changes of the number of the nursery schools in old cities, but the nursery schools decreased in old towns and villages. The number of the facilities increased 2 or 3 facilities in 2 old cities, because the fulfilment rate was 1.0 in 2000 and young children increased. 1 facility decreased in 2 old cities, but the nursery school in island area was abolished in 1 municipality.

The nursery schools decreased in 12 municipalities which accounted for 30% of all old towns and villages. The nursery schools decreased in old municipalities with 7 facilities, on the other hand the facilities decreased in old municipalities with 2 or 3 facilities too. Many public nursery schools were abolished in mountainous areas, but it is characteristic that many nursery schools which had been established before 1980 were abolished.

Table 2: The change of the number of the nursery schools from 1980 to 2000

Old cities		The number of nursery schools in 2000									
		0~5	6	7~10	11~12	13	14	15	16	17~20	21~
The number of nursery schools in 1980	0~5										
	6		2								
	7~10			3							
	11~12				3						
	13							1	1		
	14				1						
	15										
	16										
17~20								1			
21~										3	

Old towns and villages		The number of nursery schools in 2000							
		0	1	2	3	4	5	6	7~10
The number of nursery schools in 1980	0	2							
	1		8	1					
	2		4	4	1				
	3			2	5	1			
	4					1			
	5				1		1		
	6					1		3	
	7~10					2	1	1	1

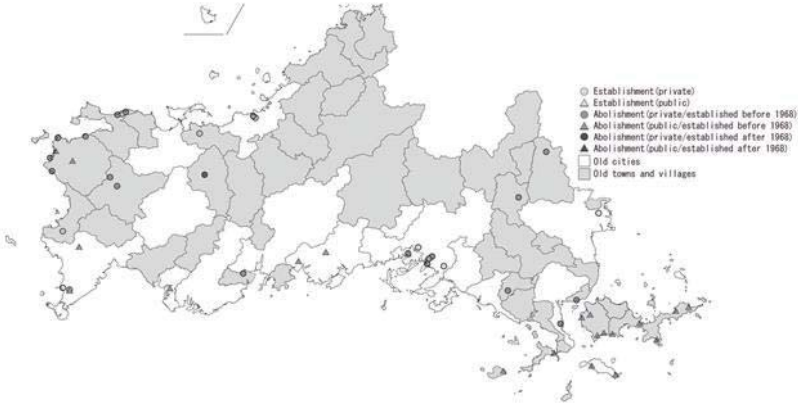


Fig. 8 The distribution map of the facilities from 1980 to 2000

(3) 2000-2015

Table 3 shows the change of the number of the nursery schools from 2000 to 2015, and figure 9

shows a distribution map of the facilities. The nursery schools increased in only 4 municipalities and tended to decreased after 2000. The nursery schools decreased in only 2 cities, so the number of the nursery schools was kept in most old cities. The number of the nursery schools was maybe adjusted according to decrease of young children, because the fulfilment rate was less than 0.75 in 2000 and 2015. On the other hand, 6 facilities were established in Yamaguchi city.

The nursery schools decreased in more than half of old towns and villages. The nursery schools decreased in old municipalities with more than 3 facilities, and there were old municipalities that decreased from 7 facilities to 2 facilities. Many public nursery schools were abolished in old towns of Shimonoseki city. The nursery schools increased 1 facility in undeveloped old municipalities and old municipalities near Yamaguchi city. In 2015, there were 18 old municipalities with only 1 nursery school and 10 old municipalities with 2 nursery schools, and it is characteristics that many old towns and villages had only 1 or 2 nursery schools.

Table 3: the change of the number of the nursery schools from 2000 to 2015

Old cities		The number of nursery schools in 2015					
		4	5	6	7~10	11~20	21~
The number of nursery schools in 2000	4						
	5						
	6	1			1		
	7~10				3		
	11~20				2	3	1
	21~					3	

Old towns and villages	The number of nursery schools in 2015							
	0	1	2	3	4	5	6	7~10
The number of nursery schools in 2000	0	1	1					
	1		11					
	2		2	5				
	3		3	2	3			
	4			2		2	1	
	5		1		1			
	6					2	2	
	7~10			1				1

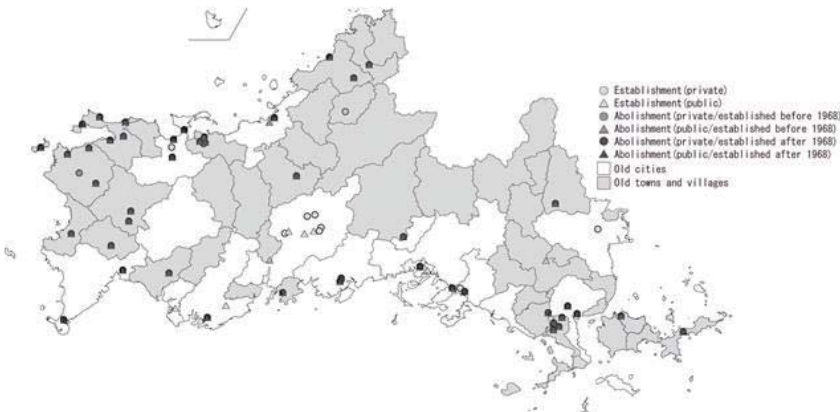


Fig. 9 The distribution map of the facilities from 2000 to 2015

### 3.6 The Relationship between the Fulfilment Rate of Facility Capacity and Trends of Establishment and Abolishment of Nursery Schools

Table 4, 5 and 6 show the relationship between the fulfilment rate of facility capacity and trends of establishment and abolishment of nursery schools. From 1968 to 1980, the nursery schools were established with increase of young children by second baby boom, because the nursery

schools were established in more than half of old municipalities regardless of the fulfilment rate of facility capacity. The nursery schools increased more than 3 facilities in 9 old cities, but the facilities increased only 1 or 2 facilities in old towns and villages. The fulfilment rate in most old municipalities was from 0.75 to 1.0, but many facilities were abolished from 1980 to 2000. And, there were 4 municipalities where the facilities increased more than 2 facilities. This is because increasing young children in old cities affected that. The nursery schools were abolished in 30 percent of all old municipalities, and more than 3 facilities were abolished in 4 old municipalities. This is because decreasing young children by end of baby boom seriously affected that.

The nursery schools were established in only 3 old municipalities and were abolished in half of all old municipalities from 2000 to 2015. 1 or 2 facilities were abolished in 6 old cities whose fulfilment rate of facility capacity was more than 0.75, and more than 4 facilities were abolished in old cities whose fulfilment rate was less than 0.75. 1 or 2 facilities were abolished in 14 old towns and villages whose fulfilment rate was more than 0.75, and 4 facilities were abolished in 1 old town. More than 4 facilities were abolished in old towns and villages whose fulfilment rate was less than 0.75, but there were 4 old municipalities which abolished 1 or 2 facilities or kept the number of the facilities. This is because there was only 1 facility in those old municipalities, and more facility couldn't be abolished. The nursery schools in old towns and villages whose fulfilment rate was less than 0.75 were abolished, and there was only 1 facility in each old municipality.

Table 4: the relationship between the fulfilment rate of facility capacity and trends of establishment and abolishment of nursery schools

Old cities		The change of the number of nursery schools					Old towns and villages		The change of the number of nursery schools						
		0	1	2	3	4~			-1	0	1	2	3	4	
The fulfilment rate of facility capacity in 1968	No date						The fulfilment rate of facility capacity in 1968	No date		4	3				
	~0.5							~0.5			1	2			
	0.5~0.75							0.5~0.75	1	4	1				
	0.75~1.00	4	1		2	6		0.75~1.00	2	12	3	2			1
	1.00~				1			1.00~		3	2	1			

Table 5: the relationship between the fulfilment rate of facility capacity and trends of establishment and abolishment of nursery schools

Old cities		The change of the number of nursery schools						Old towns and villages		The change of the number of nursery schools						
		-3	-2	-1	0	1	2			3	~ -4	-3	-2	-1	0	1
The fulfilment rate of facility capacity in 1980	No date							The fulfilment rate of facility capacity in 1980	No date						2	
	~0.5								~0.5							
	0.5~0.75								0.5~0.75				1	2		
	0.75~1.00	1	1	1	8		2		2	2	2	4	18	3		
	1.00~								1.00~				2	2		

Table 6: the relationship between the fulfilment rate of facility capacity and trends of establishment and abolishment of nursery schools

Old cities		The change of the number of nursery schools								
		~-4	-3	-2	-1	0	1	2	3	4~
The fulfilment rate of facility capacity in 2000	No date									
	~0.5									
	0.5~0.75	1								
	0.75~1.00			2	1		1			
	1.00~			1	2	5				1

Old towns and villages		The change of the number of nursery schools					
		~-4	-3	-2	-1	0	1
The fulfilment rate of facility capacity in 2000	No date					1	1
	~0.5						
	0.5~0.75	1		1	1	2	
	0.75~1.00	1		6	3	10	
	1.00~			2	3	10	1

### 3.7 Conclusion

- (1) Establishment of a nursery school has been advanced since 1947 when the child welfare law was introduced. The number of the nursery schools, the facility capacity and the nursery school children decreased after 1980 because of decreasing young children. The number of the nursery school children increased again after 2005, because the number of dual-income and single-parent households with young children increased.
- (2) Many private nursery schools in old cities and public nursery schools in old towns and villages were established especially. And it is likely that the private nursery schools in old cities take over a part of demand in old towns and villages, because the public nursery schools in old towns and villages decreased rapidly after 1995, on the other hand the private nursery schools in old cities increased.
- (3) There was no nursery school in 6 old municipalities in 1968, but the fulfilment rate of facility capacity was more than 0.75 in most old municipalities. The fulfilment rate was kept more than 0.75 in 1980. The fulfilment rate in many old cities near the Seto inland sea was 1.0 in 2000, but old towns and villages whose fulfilment rate was less than 0.75 increased in mountainous areas. So, there was the disparity between old municipalities. The undeveloped old municipalities decreased, but old municipalities whose fulfilment rate was less than 0.75 increased in mountainous areas in 2015. So, the disparity was expanded between old municipalities.
- (4) From 1968 to 1980, the facility establishment was advanced in old municipalities with only 1 facility. Many nursery schools which had been established before 1980 were abolished from 1980 to 2000. The public nursery schools decreased in more than half of old municipalities from 2000 to 2015. There were 18 municipalities with only 1 nursery school in old towns and villages.

- (5) There was no relationship between the fulfilment rate of facility capacity and the number of the nursery schools in old cities. However, many nursery schools were abolished in old towns and villages with low fulfilment rate after 2000. On the other hand, there were old municipalities where 1 or 2 facilities abolished or the number of the facilities was kept. This is because there was only 1 facility in those old municipalities, and more facility couldn't be abolished.

From the above, the nursery school children increase, because the dual-income and single-parent households increase, but young children decrease. The private nursery schools increased in old cities, and the public nursery schools increased too. However, the public nursery schools decreased rapidly after 1980 in old towns and villages. So, it is likely that the private nursery schools in old cities take over a part of demand in old towns and villages. Especially, there is a serious condition that the fulfilment rate of facility capacity was less than 0.75 in old towns and villages with only 1 facility in 2015. In addition, many abolished nursery schools in old towns and villages are left as they are now. So, it is an important issue to consider the activation methods for them.

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